

3.0 ENVIRONMENTAL SETTING

The Project lies along the north shore of Lake Tahoe (Figure 1). Lake Tahoe is approximately 497.28 square kilometers (192 square miles) in size and one of the highest lakes (1,898.60 m [6,229 ft] elevation) in the United States. Mean annual precipitation ranges from over 55 inches/year in watersheds on the west side of the basin to about 26 inches/year near the lake on the east side of the basin. Most of the precipitation falls as snow between November and April. There is a pronounced annual runoff of snowmelt in late spring and early summer. In some years, summertime monsoonal storms from the Great Basin bring intense rainfall, especially to high elevations on the east side of the basin. High elevation and cool temperatures result in a short growing season, with an average of only 70 to 120 frost-free days per year (TRPA 1971).

Vegetation in the basin is dominated by mixed conifer forest of Jeffrey pine (*Pinus jeffreyi*), lodgepole pine (*P. murrayana*), white fir (*Abies concolor*), and red fir (*A. magnifica*). The basin also contains significant areas of wet meadows and riparian areas, dry meadows, brush fields, and rock crop areas. Soils in the basin are primarily derived from andesitic volcanic rocks and grandodiorite, with minor areas of metamorphic rock. Some of the valley bottoms and lower hill slopes are mantled with glacial moraines, or glacial outwash material. The basin soils are generally 65–85% sand.

3.1 Description of the Existing Biological and Physical Conditions

3.1.1 Biological Study Area

The Project BSA is approximately 325.77 hectares (805 acres), including a portion of SR 28, and residential and commercial surface streets adjacent to developed (urban) and undeveloped parcels (Figures 3 and 4). The boundaries of the BSA are Chipmunk Street to the east, SR 267 to the west, along a diagonal running west to east from Rainbow to Minnow Avenue to the north, and the shoreline of Lake Tahoe to the south.

3.1.2 Physical Conditions

The topography of the BSA is a gradual slope from the Project's northern boundary down to the shore of Lake Tahoe. Elevations range from approximately 1,914.14 m (6,280 ft) above mean sea level (amsl) to 1,898.90 m (6,230 ft) amsl at the lakeshore. The hydrology of the BSA mainly consists of Griff Creek, an additional ephemeral creek, and several scattered wetland areas (Figure 3). Surface water flow includes natural snowmelt and rain runoff. The climate of the site mirrors that of the Tahoe Basin, as described above.

The soils of the BSA include alluvial (Gravelly Alluvial Land), morainal (Jabu), upland (Umpa), and Marsh soil types (SCS, USFS 1974). Alluvial soils are usually clay, silt, sand, gravel, or similar loose material deposited by running water. Morainal soils are an accumulation of earth and stones carried and finally deposited by a glacier. Upland soils are well-drained, coarse-grained soils. Marsh soil is the only soil type within the BSA that is hydric (i.e., soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (USDA, NRCS 1995).

3.1.3 Biological Conditions in the Biological Study Area

This section describes the biological setting of the BSA, including the vegetation communities; common, special-status, and invasive plant species; wetlands; wildlife; and wildlife habitat.

3.1.3.1 Vegetation Communities

The BSA is characterized by two principal vegetation communities: urban-altered Jeffrey pine and montane riparian. Several scattered wetland areas also are located within the area.

Urban-Altered Jeffrey Pine

The BSA contains approximately 313.79 hectares (775.4 acres) of urban-altered Jeffrey pine. This community is predominately second- and third-growth remnant forest stands of Jeffrey pine with incense-cedar (*Calocedrus decurrans*), some white fir, and ponderosa pine (*Pinus ponderosa*) providing additional tree cover. Commercial and residential areas are interspersed throughout the forest stands. The commercial zone of the Project area adjacent to SR 28 is primarily covered with structures and other hardscape features. The shrub understory within this urbanized community consists of sparse and scattered montane mixed chaparral species, including greenleaf manzanita (*Arctostaphylos patula*), antelope bitterbrush (*Purshia tridentata*), and snowberry (*Symphoricarpos* spp.). The herbaceous component of the understory is largely lacking. LSOGs, including Jeffrey pine, ponderosa pine, and incense cedar, are distributed sporadically throughout the BSA. Figure 3 shows the locations of these trees.

Montane Riparian

Riparian vegetation is located within the Griff Creek SEZ, the Kings Beach State Recreation Area, drainage outlets on the beach, topographically low areas located south of SR 28, and rock-lined channels within the residential and commercial areas that collect surface drainage (Figure 3). Predominant species include quaking aspen (*Populus tremuloides*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), mountain alder (*Alnus incana* ssp. *tenuifolia*), and white poplar (*Populus alba*) in the tree overstory; and Woods rose (*Rosa woodsii*), chokecherry (*Prunus virginiana*), willows, and currant (*Ribes* spp.) in the shrub understory. Herbaceous species commonly observed in these areas include horsetail (*Equisetum* spp.), sedge (*Carex* spp.), rush (*Juncus* spp.), and Kentucky bluegrass (*Poa pratensis*). A band of emergent vegetation consisting of small fruit bulrush (*Scirpus microcarpus*) also was observed on a low-lying bench adjacent to Griff Creek and the containment basin (Figure 3).

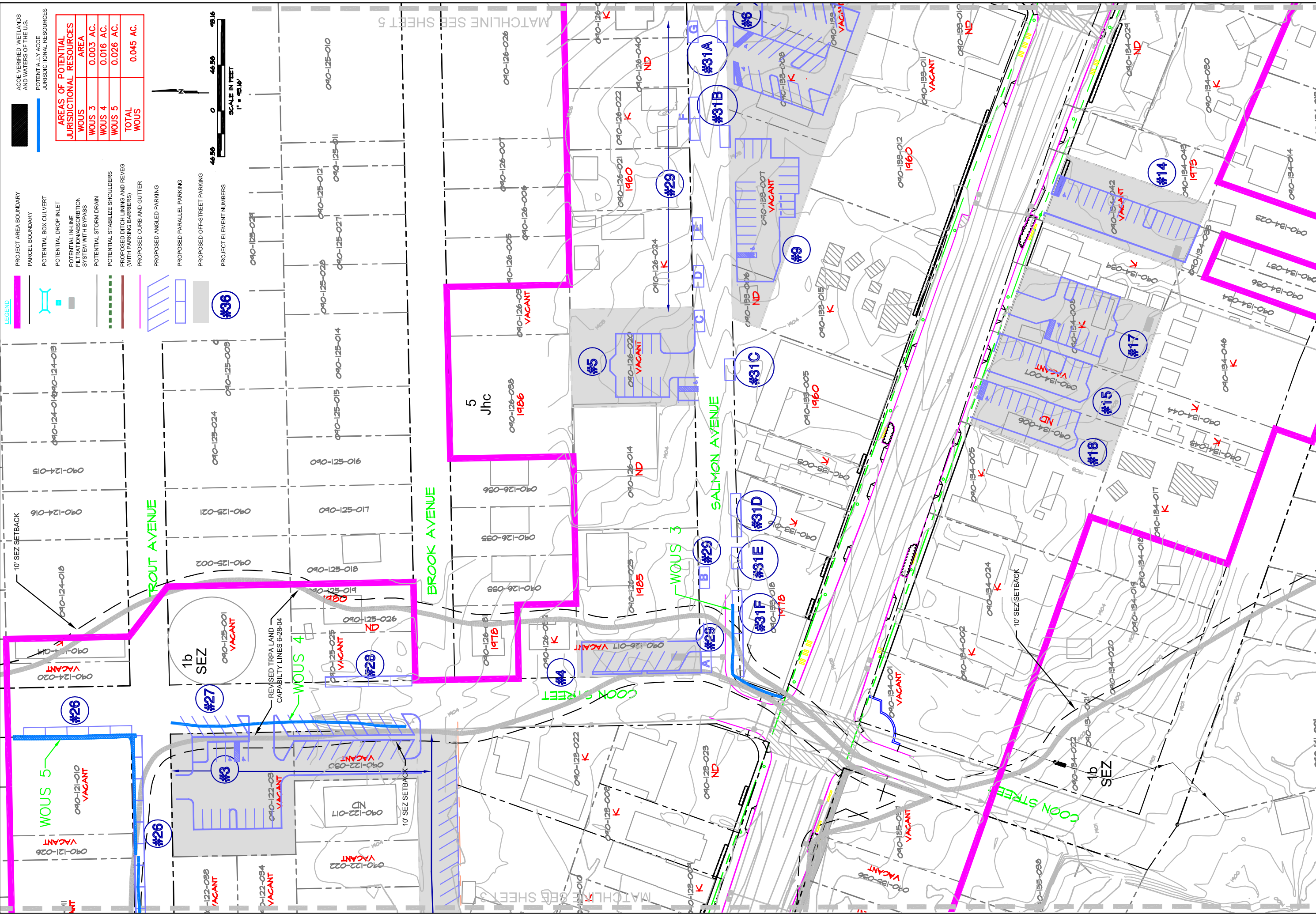


Figure 3 Sheet 4 of 6
Kings Beach Commercial Core Improvement Project
Potential and Previously Verified Jurisdictional Resources

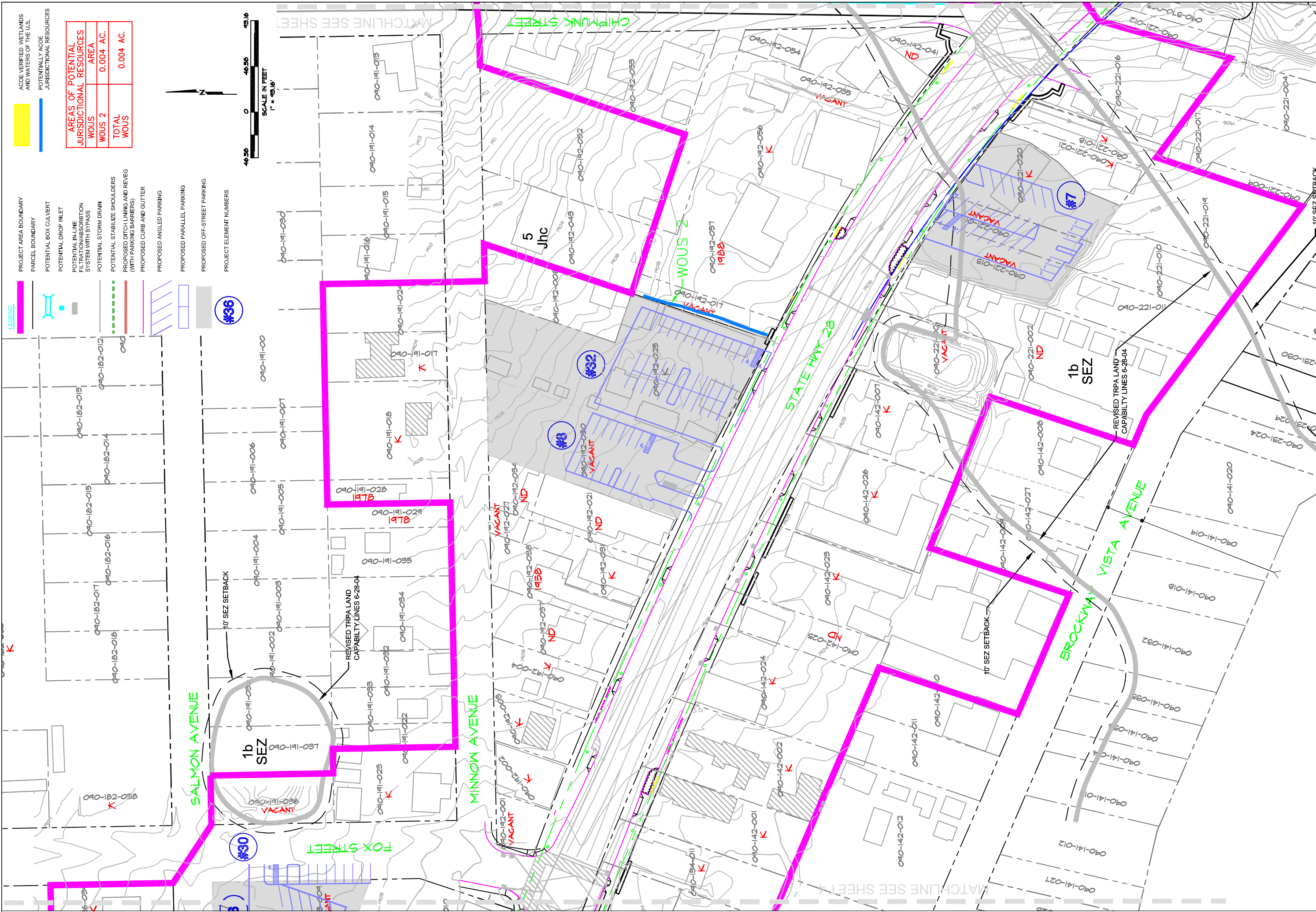




Figure 3 Sheet 6 of 6
Kings Beach Commercial Core Improvement Project
Potential and Previously Verified Jurisdictional Resources



Figure 4
Special Status Species
Wildlife and Plant Habitat Map

3.1.3.2 Stream Environment Zones

TRPA land use classifications define SEZs as very sensitive, with a low tolerance for disturbance. They are therefore considered special-status communities. The TRPA performed a formal land capability verification of the Project area and provided Placer County with a map of the verified land capability boundaries on June 28, 2004 (Zeier 2004). The SEZ area designated by TRPA within the BSA covers approximately 84.58 hectares (209 acres). Land capability 1b indicates the presence of SEZs, as shown on Figures 2 and 3, and includes the 3.058-m (10-ft) SEZ setback. Within the BSA, verified SEZs are located within the vicinity of Griff Creek; south of SR 28 to and including the lakefront to just east of Coon Street; from near the intersection of Trout Avenue and Coon Street, following Coon Street to the lake; the corner of Salmon Avenue and Fox Street; and the southeast corner of the BSA.

3.1.3.3 Wetlands and Other Waters of the U.S.

Figure 3 shows the distribution and area of the wetlands and waters of the United States within the BSA. Based on the 2002 MACTEC delineation of the Project area, these wetland features include 0.50 hectare (1.23 acres) of wetlands and 0.18 hectare (0.29 acre) of other waters of the United States, including Griff Creek and a portion of an ephemeral stream. A follow-up delineation in 2004 identified the drainage ditches adjacent to various roadways as additional potential wetland areas. Of all these areas, the Corps has verified only 0.06 hectare (0.146 acre) of jurisdictional wetlands in 2001 (Appendix E). The Corps has not yet verified the 2002 and 2004 wetland delineations.

3.1.3.4 Weedy Plants

Both perennial and annual introduced weedy plant species were observed during the 2001, 2002, and 2004 field surveys. All noxious weed locations identified during these field surveys are presented in Figure 3.

The 2001 surveys for weedy plants in the BSA found no established populations of federally designated noxious weeds and no plants listed as exotic or potentially invasive in the *Focal Vascular Plant Species of the Lake Tahoe Basin* (Manley and Schlesinger 2000). However, the California Invasive Plant Council (Cal-IPC 1999) list indicated bouncingbet (*Saponaria officinallis*), bull thistle (*Cirsium vulgare*), and common muellin (*Verbascum thapsus*) as Group 2/ List B Priority Invasive Weeds of the Tahoe Basin (manage infestations with a goal of eradication) and wildland plants of lesser invasiveness. Bouncingbet was located in the Kings Beach Recreation Area, bull thistle on the northeast corner of Coon Street and Brook Avenue, and common muellin around the perimeter of the Griff Creek containment pond.

During the 2002 field surveys, two California designated noxious weeds, diffuse knapweed (*Centaurea diffusa*) and scotch broom (*Cytisus scoparius*), were found within the BSA area. Diffuse knapweed is an introduced List A California noxious weed species and a Group 1 Priority Invasive Weed of the Tahoe Basin (watch for, report, and eradicate immediately). Six knapweed plants were observed on the east side of Secline Avenue south of SR 28 in the park area. Scotch broom is an introduced List C California noxious weed species and a Group 1 Priority Invasive Weed of the Tahoe Basin. The scotch broom was observed on the west side of Secline Avenue, south of SR 28.

Other plant species found in the BSA during 2001 and 2002 and identified as exotic (non-native, introduced) by the *Focal Vascular Plant Species of the Lake Tahoe Basin*, include narrowleaf plantain (*Plantago lanceolata*), fowl bluegrass (*Poa palustris*), Kentucky bluegrass, tumbled mustard (*Sisymbrium altissimum*), and common dandelion (*Taraxacum officinale*). Kentucky bluegrass is established in cultivated lawn areas in association with common dandelion and buckhorn plantain. Moist understory riparian areas supported fowl bluegrass and Kentucky bluegrass, where they have become naturalized. Common weedy species encountered on disturbed soils include goatsbeard (*Tragopogon dubius*), prickly lettuce (*Lactuca serriola*), filaree (*Erodium cicutarium*), and white sweetclover (*Melilotus alba*). The Cal-IPC list indicated black locust (*Robina psuedoacacia*), bouncingbet and common muellin as wildland pest plants of lesser invasiveness. Black locust and bouncingbet were located in the Kings Beach State Recreation Area and appear to be cultivated as ornamentals. Common muellin was found primarily around the perimeter of the Griff Creek containment pond.

No California designated noxious weeds were observed during the 2004 field surveys. However, a few bull thistle rosettes were identified as occurring within the BSA (see Figure 3).

3.1.3.5 Wildlife and Wildlife Habitat

The BSA covers approximately 325.8 hectares (805 acres), including a portion of SR 28 and residential and commercial surface streets adjacent to developed (urban) and undeveloped parcels. The dominant wildlife habitat type, as described in the California Wildlife Habitat Relationship System (DFG 1988), that occurs within the Project area is Jeffrey pine, with an urban component (313.82 hectares [775.4 acres]) interspersed throughout. In addition, 4.45 hectares (11.0 acres) of montane riparian habitat is found in the Project area. The Jeffrey pine/urban and montane riparian habitats were observed within residential, commercial, and undeveloped parcels of the Project area.

Jeffrey Pine/Urban

The dominant Jeffrey pine habitat occurs throughout the BSA and is interspersed with urban (commercial and residential) habitat. Other tree species occurring within the Jeffrey pine/urban habitat include ponderosa pine, white fir, and incense-cedar. Human disturbance associated with development within the BSA limits utilization of the area by special-status, special interest, and management indicator species sensitive to human activities, including the bald eagle (*Haliaeetus leucocephalus*) and osprey (*Pandion haliaetus*). Although foraging and wintering habitat for the bald eagle and osprey are available in the BSA, these species are unlikely to occur due to the high levels of human disturbance and development.

Many wildlife species utilizing the BSA area including Jeffrey pine/urban habitat will tolerate forests fragmented by urban development, especially when alternate food sources are available. Common mammal species known to utilize Jeffrey pine/urban areas include the chipmunk (*Eutamias* sp.), golden-mantled ground squirrel (*Spermophilus lateralis*), and Douglas' squirrel (*Tamiasciurus douglasii*). Although less common, the Western gray squirrel (*Sciurus griseus*) was the only squirrel species to be observed in the BSA. The black bear (*Ursus americanus*), a LTBMU management indicator species, has adapted to urban development and is a frequent visitor to garbage cans and dumpsters. Numerous birds have adapted to this urban environment and reside in the BSA. Common birds species observed within the BSA include the mountain

chickadee (*Poecile gambeli*), American robin, Steller's jay, mourning dove (*Zenaida macroura*), warbling vireo (*Vireo gilvus*), and others as listed in Appendix B.

Montane Riparian

The montane riparian (MRI) habitat within the BSA is fragmented, with the most contiguous portion occurring within the Griff Creek SEZ. Other limited MRI habitat areas are scattered throughout the BSA, as presented in Figure 3. The overstory vegetation for this habitat includes quaking aspen, black cottonwood, and/or white poplar. The understory is comprised of Woods rose and/or chokecherry. Migratory birds and other special-status wildlife have the potential to occur within these limited areas of MRI habitat. The section of Griff Creek occurring within the BSA provides suitable habitat for migratory birds, waterfowl, and fish (Appendix B).

3.1.3.6 Migration Corridors

Wildlife migration corridors within the Kings Beach BSA are very limited in size. The riparian zones adjacent to Griff Creek, an additional ephemeral creek, and several scattered wetland areas provide the only MRI habitat for migratory birds and waterfowl in the BSA. Large and small resident mammal, reptile, and amphibian species may also use the Griff Creek corridor for seasonal migration movements, although none were observed during the field surveys. Griff Creek provides migratory and breeding habitat for brook and rainbow trout.

3.2 Regional Context

Table 2 identifies those species and natural communities of concern designated by USFWS, DFG, TRPA, and LTBMU with the potential to occur in the Lake Tahoe Basin area. Wildlife and plant species for which suitable habitat occurs within or in the vicinity of the BSA are indicated in Table 2 and are discussed after the table. Those species identified as not having suitable habitat within the BSA are not discussed further in this report. The regional species and natural communities of concern identified in Table 2 were obtained through consultation with USFWS, DFG, LTBMU, and TRPA (Appendix D).

Table 2. Regional Species and Natural Communities of Concern

| Scientific Name | Common Name | Status ¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|------------------------------------|-------------------------------|--|--|-----------------------------------|---|
| Mammals | | | | | |
| <i>Aplodontia rufa californica</i> | Sierra Nevada Mountain Beaver | DFG (CSC) | Occurs within dense forest and thickets, usually in moist soils and near and abundant supply of water | A | Limited habitat in SEZ but highly disturbed by nearby human activity |
| <i>Corynorhinus townsendii</i> | Townsend's Big-eared Bat | LTBMU (S), USFWS (SC), DFG (CSC) | Commonly occurs in mesic habitats characterized by coniferous and deciduous forests | A | Limited suitable habitat in BSA. No records of this species in the vicinity; no detections during acoustic survey |
| <i>Gulo gulo</i> | California Wolverine | LTBMU (S), DFG (FP) | Mixed conifer, red fir and lodgepole habitats with dense cover, open areas and low human disturbance. | A | Limited and patchy urban/mixed conifer habitat that is low in cover and high in human disturbance. |
| <i>Lepus americanus tahoensis</i> | Sierra Nevada Snoshoe Hare | DFG (CSC) | Prefers dense cover of coniferous and mixed forests with abundant understory cover. Also utilizes coniferous swamps adjacent to mixed forests | A | Limited habitat in Griff Creek SEZ, but isolated and highly disturbed with human activity. |
| <i>Martes americana</i> | American Marten | LTBMU (S) USFWS (SC) | Mixed evergreen forests with more than 40% crown closure, with large trees and snags. Habitat with limited human use is important. | A | Limited and patchy Jeffrey pine/urban habitat with greater than 40% canopy cover. High human disturbance. |
| <i>Martes pennanti</i> | Fisher | USFWS (C) | Large areas of dense mature (intermediate to large) trees in coniferous forests, deciduous riparian habitats, snags and a high percentage of canopy cover. | A | Limited and patchy mature Jeffrey pine/urban habitat with greater than 40% canopy cover. High human disturbance. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status ¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|------------------------------|-----------------------|--|--|-----------------------------------|--|
| <i>Odocoileus hemionus</i> | Mule Deer | TRPA (SI), LTBMU (MIS) | Intermediate successional stages of most forest, woodland, and brush habitats. Prefer a mosaic of woody cover, meadow, shrubby openings, and water habitats. | A | Fragmented urban coniferous forest and riparian habitat. Minimal forage and protective cover. |
| <i>Taxidea taxus</i> | American Badger | DFG (CSC) | Most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils. | A | Existing limited habitat with friable soils is highly disturbed by development and human activity. |
| <i>Ursus americanus</i> | Black Bear | LTBMU (MIS) | Dense stands of mature forests including brushy forests, riparian and wet meadow habitats. | P | Species known to frequent urban/forest areas of Lake Tahoe. |
| <i>Vulpes vulpes necator</i> | Sierra Nevada Red Fox | LTBMU (S), USFWS | A variety of habitats including wet-meadow, montane chaparral, montane riparian, mixed conifer, red fir, lodgepole pine and Ponderosa pine. Dense vegetation required for cover and denning. Open areas for hunting. | A | Limited and patchy urban/coniferous habitat and dense vegetation for cover and denning. |
| Birds | | | | | |
| <i>Accipiter gentilis</i> | Northern Goshawk | TRPA (SI), LTBMU (S), USFWS (SC), DFG (CSC) | Mature and old-growth dense conifer forests and deciduous habitats, interspersed with meadows, openings, and riparian areas. | A | Limited and patchy urban/forest with no meadows. High human disturbance. |
| <i>Anas platyrhynchos</i> | Mallard | TRPA (SI), LTBMU (MIS) | Fresh emergent wetlands, riverine habitats and ponds. | P | Griff Creek and the associated retention pond provide mallard nesting and foraging habitats. |
| <i>Aquila chrysaetos</i> | Golden Eagle | TRPA (SI), DFG (CSC) | Mountain terrain with open slopes, cliffs, and rock outcrops. | A | Absence of open slopes, cliffs, and rock outcrops. |
| <i>Dendragapus obscurus</i> | Blue Grouse | LTBMU (MIS) | Medium to mature coniferous habitats with open brushy areas, open grass/forb areas all close to water. | A | Limited and patchy urban/mature forest with no large open brushy or grass/forb areas. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|--|--------------------------------|----------------------------------|--|---|---|
| <i>Dryocopus pileatus</i> | Pileated Woodpecker | LTBMU (MIS) | Large areas of mature coniferous forests (100–300 years old), large snags and a permanent source of water. | A | Limited and patchy urban/mature coniferous forest with no large snags and high human disturbance. |
| <i>Empidonax traillii</i> | Willow Flycatcher | LTBMU (S) | Wet meadows, ponds, and montane riparian habitats that contain extensive thickets of low willows. | A | Absence of thick and extensive thickets of low willows. |
| <i>Falco peregrinus anatum</i> | American Peregrine Falcon | TRPA (SI), DFG (FP) | Woodlands, forests and coastal habitats with cliffs and water nearby. | A | Absence of cliffs for cover and nesting. |
| <i>Haliaeetus leucocephalus</i> | Bald Eagle | USFWS (T), TRPA (SI), DFG (FP) | Mature coniferous forests with dominant and co-dominant trees. Large body of water within one mile. Limited human disturbance. | P | High human disturbance precludes suitable nesting habitat and offers limited roosting habitat |
| <i>Pandion haliaeetus</i> | Osprey | TRPA (SI) | Open forests with large snags and near open water. | P | High human disturbance precludes suitable nesting habitat and offers limited roosting habitat |
| <i>Strix nebulosa</i> | Great Gray Owl | LTBMU (S), DFG (CSC) | Old-growth red fir, mixed conifer or lodgepole pine habitats with nearby wet meadows. Large broken top snags for nesting. | A | Limited and patchy urban/old-growth mixed conifer habitat. No large snags and no meadows. |
| <i>Strix occidentalis occidentalis</i> | California Spotted Owl | LTBMU (S), USFWS (SC), DFG (CSC) | Large areas of mature forest with large snags and a permanent source of water. | A | Limited and patchy urban/mature coniferous forest with no large snags and high human disturbance. |
| Not applicable | Waterfowl Species ² | TRPA | Fresh emergent wetlands, riparian habitats, ponds, and large water body. | P | Waterfowl species known to frequent Lake Tahoe and Grifff Creek habitats. |
| Not applicable | Migratory Birds ³ | USFWS (SC) | Utilize a variety of habitats including montane forest, riparian, and urban/forest. | P | Presence of migratory bird species throughout all habitat types. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status ¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|---|-----------------------------|-------------------------------------|--|-----------------------------------|---|
| Fish | | | | | |
| <i>Gila bicolor pectinifer</i> | Lahontan Lake Tui Chub | LTBMU (S), DFG (CSC) | Higher water column of large deep lakes. | A | Griff Creek does not provide required deep lake habitat. |
| <i>Oncorhynchus clarki henshawi</i> | Lahontan Cutthroat Trout | USFWS (T), TRPA (SI) | Large terminal lakes, alpine lakes, slow meandering low-gradient rivers, moderate-gradient montane rivers, and small headwater tributary stream. | A | No known occurrence of Lahontan Cutthroat trout in the Griff Creek stream channel. |
| <i>Oncorhynchus mykiss</i> | Rainbow Trout | LTBMU (MIS) | Fresh water, moderate to fast flowing, well oxygenated waters for breeding. | P | Presence of habitat (Griff Creek) and known occurrences of species. |
| <i>Salvelinus fontinalis</i> | Brook Trout | LTBMU (MIS) | Small, cold, and clean streams, ponds, and lakes. | P | Presence of habitat (Griff Creek) and known occurrences of species. |
| Amphibians | | | | | |
| <i>Rana muscosa</i> | Mountain Yellow-legged Frog | LTBMU (S) USFWS (C) DFG (CSC) | Streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitat types. | A | Limited, patchy urban/montane riparian and wet meadow habitats. No known occurrences in Griff Ck. |
| <i>Rana pipiens</i> | Northern Leopard Frog | LTBMU (S), DFG (CSC) | Quiet permanent or semi-permanent water in many habitats. | A | Limited and patchy urban/montane riparian and wet meadow habitats with quiet waters. |
| Plants | | | | | |
| <i>Arabis rectissima</i> var. <i>simulans</i> | Washoe Tall Rockcress | LTBMU (LSI) | Dry, sandy granitic or andesitic soils on gentle slopes within open, mature Jeffrey pine dominated forests, often on recovering lightly disturbed soils. Elevations range from 1,839 m (6,035 ft) to 2,240 m (7,350 ft). | P | Required habitat and elevation range of species present. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|---|-------------------------|-------------------------------|---|---|--|
| <i>Arabis rigidissima</i> var. <i>demota</i> | Galena Creek Rock Cress | LTBMU (S) FWSUSFWS (SC) | Sandy to rocky granitic or volcanic soils or outcrops. Moderate to steep northern slopes in moisture accumulating microsites. Rocky openings above 2,286 m (7,500 ft). | A | No moderate to steep slopes present. |
| <i>Arabis tiehmii</i> | Tiehm Rock Cress | LTBMU (S) | Steep outcrops, talus, and scree of weathering andesitic and metavolcanic deposits or decomposed granite or carbonates. Ridgetops and dry drainages in alpine and subalpine habitats. | A | Subalpine and alpine habitats not present. |
| <i>Botrychium ascendens</i> | Upswept Moonwort | LTBMU (S) FWSUSFWS (SC) | Mesic, meadow, and riparian areas above 1,500 m (4,920 ft) elevation, under a willow canopy and in stream splash zones with moss. | P | Presence of required habitats, vegetation components. Appropriate elevation range. |
| <i>Botrychium crenulatum</i> | Scalloped Moonwort | LTBMU (S) | Ponderosa forests, freshwater wetlands, bogs, fens, meadows and seeps. It is found between 1,189 m (3,900 ft) and 2,499 m (8,200 ft) in elevation. | P | Presence of required mesic and Jeffrey/ponderosa pine forest and elevation range. |
| <i>Botrychium lineare</i> | Slender Moonwort | LTBMU (S) | At elevations between approximately 1,500 m (4,921 ft) and 3,000 m (9,843 ft) in mountains. Habitat ranges from meadow, wooded areas, cliffs, or disturbed early seral sites. | P | Although there are no known occurrences within LTBMU or the BSA the species is expected to have a wide ecological amplitude. |
| <i>Botrychium lunaria</i> | Common Moonwort | LTBMU (S) | Open fields and forests of southern Sierra Nevada. | A | No known occurrences within BSA. Outside known range. |
| <i>Botrychium minganense</i> | Mingan Moonwort | LTBMU (S) | Yellow pine forest along streams between 1,500 m (4,921 ft) and 1,800 m (5,905 ft). | P | Presence of habitat and appropriate elevation range. |
| <i>Botrychium montanum</i> | Western Goblin | LTBMU (S) | Shady coniferous forests between 1,500 m (4,921 ft) and 1,800 m (5,905 ft). | P | Presence of habitat and appropriate elevation range. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status ¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|---|-------------------------|---|--|-----------------------------------|--|
| <i>Bruchia bolanderi</i> | Bolander's Candle Moss | LTBMU (S) | Ephemeral wetland areas in meadow habitats of mixed conifer and alpine communities along ditches and streams. | P | Presence of ephemeral wetland habitats. |
| <i>Draba asterophora</i> var. <i>asterophora</i> | Tahoe Draba | TRPA (SI), LTBMU (S) | Granitic rock crevices, talus, scree, or rocky decomposed granitic or volcanic soils on steep northern slopes. Subalpine forests. | A | No subalpine, rocky, steep northern slopes within proposed Project area. |
| <i>Draba asterophora</i> var. <i>macrocarpa</i> | Cup Lake Draba | FWSUSFWS (SC), TRPA (SI), LTBMU (S) | Rocky crevices in subalpine forests above 2,500 m (8,202 ft). | A | No rocky crevices or subalpine forests within proposed Project area. |
| <i>Epilobium howellii</i> | Subalpine Fireweed | LTBMU (S) | Wet, boggy areas, meadows, and swales with grasses, moss and willows. | P | Presence of habitat and vegetation components. |
| <i>Erigeron miser</i> | Starved Daisy | LTBMU (S) | Upper montane coniferous forest and rocky soils. | A | No upper montane forest with rocky soils within the proposed Project area. |
| <i>Eriogonum umbellatum</i> var. <i>torreyanum</i> | Donner Pass Buckwheat | FWSUSFWS (SC), LTBMU (S) | Highly erosive volcanic soils. Meadows within a lodgepole or red fir forest. | A | No lodgepole or red fir forest habitats within proposed Project area. |
| <i>Helodium blandowii</i> | Blandow's Helodium Moss | LTBMU (LSI) | Wet areas dominated by willows and mineotrophic peatlands. | P | Presence of willow canopy and wet areas at Griff Creek. |
| <i>Hulsea brevifolia</i> | Shortleaf Alpinegold | LTBMU (S) | Gravelly soils within montane forest dominated by red fir or mixed conifers. Elevations range from 1,500 m (4,920 ft) to 2,701 m (8,860 ft). | A | Outside known range for species occurrences at Yosemite Nat'l Park and not within elevational range for the species. |
| <i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i> | Kellogg's lewisia | LTBMU (LSI) | Sandy, granitic to erosive volcanic soils with granite boulders on ridgetops to open flat areas in widely spaced conifers. Elevations from 1,554 m (5,100 ft) to 2,134 m (7,000 ft). | A | Required habitat not present and outside known range of species occurrences in El Dorado Nat'l Forest. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|--------------------------------|------------------------|--|--|---|--|
| <i>Lewisia longipetala</i> | Long-petaled Lewisia | USFWS (SC), TRPA (SI), LTBMU (S) | Alpine boulder and rock field, subalpine. coniferous forest (mesic, rocky), granitic. | A | No alpine rocky or subalpine forest habitats within proposed Project area. |
| <i>Meesia longiseta</i> | Meesia Moss | LTBMU (LSI) | Usually in fens but sometimes along freshwater streams at high elevations. | A | Not within elevational range of the species. |
| <i>Meesia triquetra</i> | Three-ranked Hump-moss | LTBMU (S) | Fens, bogs and wet area at elevations between 1,300 m (4,265 ft) and 2,500 m (8,200 ft). | A | Absence of preferred acidic habitats. |
| <i>Meesia uliginosa</i> | Broad-nerved Hump-moss | LTBMU (S) | Fens, bogs and wet meadows at elevations between 1,300 m (4,265 ft) and 2,500 m (8,200 ft). | P | Presence of permanently wet areas adjacent to Griff Creek. |
| <i>Myurella julacea</i> | Myurella Moss | LTBMU (LSI) | Soil over rocks or within crevices of alpine boulders and rock fields, often within subalpine coniferous forest. | A | Required habitat not present. |
| <i>Orthotrichum praemorsum</i> | Orthotrichum Moss | LTBMU (LSI) | Shaded, moist habitats of Eastside Sierra Nevada rock outcrops up to 2,500 m (8,200 ft). | A | Required habitat not present |
| <i>Orthotrichum shevockii</i> | Shevock's Orthotrichum | LTBMU (LSI) | Dry granitic rock outcrops in Carson Range, Douglas and Carson City Counties. | A | Required habitat not present |
| <i>Orthotrichum spjutii</i> | Spjut's Bristle Moss | LTBMU (LSI) | Continually misted, shaded granitic rock faces at high elevations of Sonora Pass. | A | Required habitat not present |
| <i>Peltigera hydrothyria</i> | Veined Water Lichen | LTBMU (S) | Lower to mid-montane elevations in small, fresh water, perennial streams with little fluctuation in water level and scouring. | P | Presence of required freshwater habitat. |
| <i>Pohlia tundrae</i> | Tundra Pohlia Moss | LTBMU (LSI) | Gravelly, damp soils of alpine boulder and rock fields. Elevation ranges from 2,700 m (8,860 ft) to 3,000 m (9,840 ft). | A | Required habitat and elevation not present. |

Table 2. Regional Species and Natural Communities of Concern (continued)

| Scientific Name | Common Name | Status ¹ | General Habitat Description | Habitat Present (P) Absent (A) | Rationale |
|--|--------------------|---|---|-----------------------------------|--|
| <i>Rorippa subumbellata</i> | Tahoe Yellow Cress | TRPA (SI), LTBMU (S), USFWS (C), DFG (E) | Beaches around the perimeter of Lake Tahoe including active beaches, stream inlets, beach dunes, and backshore depressions. | P | Presence of habitat at shorezone. |
| <i>Sphagnum spp.</i> | Sphagnum Mosses | LTBMU (LSI) | Usually in fens and bogs, sometimes in very wet, non-acidic habitats that remain saturated. | A | Soils too well drained, and no fens or bogs present. |
| Natural Communities | | | | | |
| Late Seral/Old Growth Trees | N/A | USFWS, DFG, TRPA, LTBMU | Live or dead trees greater than or equal to 30" diameter-at-breast-height. | P | Presence of Late seral/old growth Trees throughout Project area. |
| Stream Environment Zones | N/A | Corps, DFG, TRPA, LTBMU | Stream and associated drainage, as well as marshes and meadows | P | Presence of SEZ along Griff Creek and other isolated wet areas. |
| Wetlands and Waters of the United States | N/A | Corps | Wetlands: areas inundated or saturated by surface or ground water that support vegetation adapted to those conditions. WOUS: interstate waters. | P | Corps verification of .0591 hectare (0.146 acre) of jurisdictional wetlands and one perennial and one intermittent other waters of the United States |
| Weedy Plant Species | N/A | TRPA, CDFA, LTBMU | Perennial or annual plants identified as noxious, exotic, or potentially invasive. | P | Identification of weedy plant species. |

¹Status Codes:

CDFA (California Department of Food and Agriculture)

DFG (California Department of Fish and Game): E – Endangered Species, FP – Fully Protected, and CSC – California Special Concern Species.

USFWS (US Fish and Wildlife Service): T – Threatened Species, E – Endangered Species, C – Candidate Species, and SC – Species of Concern.

LTBMU (Lake Tahoe Basin Management Unit): MIS – Management Indicator Species, S - Sensitive Species, and LSI – Species of Interest.

TRPA (Tahoe Regional Planning Agency): SI – Special Interest Species.

²Waterfowl: Defined by TRPA as birds of the families Anatidae (ducks), Pelecanidae (pelicans), Ardeidae (herons), Rallidae (rails), Laridae (gulls), Charadriidae (plovers), Scolopacidae (snipes) and Phalaropodidae (cormorants).

³Migratory Birds: As defined by the Migratory Bird Treaty Act 1918, as amended.

4.0 RESULTS: BIOLOGICAL RESOURCES, DISCUSSION OF IMPACTS AND MITIGATION

This section identifies the natural communities and special-status plant and wildlife species that occur or could potentially occur within the Project area; how they could be affected by Project actions; and the avoidance and minimization measures and compensatory mitigation that would be implemented to reduce, eliminate, or compensate for such impacts. Impacts include direct and indirect, permanent (long-term) and temporary (short-term), and cumulative impacts. Direct impacts are caused by a specific action or activity at the same time and place. Indirect impacts are caused by a specific action or activity, but typically occur later in time or farther in distance. Temporary impacts are short term and are defined as those changes to the environment that occur during construction activities and generally revert to preconstruction conditions within a few years of the end of construction. Permanent impacts are long term and are defined as those changes to the environment that last for the life of the Project or beyond.

4.1 Special-Status Species with Potential to Occur in the BSA

Table 3 summarizes the special-status species identified in Section 3.2 that occur or could potentially occur in the BSA. The rationale provided describes the reasons why each species was determined to be present or absent in the study area.

Table 3. Special-Status Species with Potential to Occur in the BSA

| Scientific Name | Common Name | Status ¹ | Specific Habitat Present/ Absent | Species Presence/ Absence | Rationale |
|---|--------------------------------|--------------------------------|----------------------------------|---------------------------|---|
| Mammals | | | | | |
| <i>Ursus americanus</i> | Black Bear | LTBMU (MIS) | P | P | Presence of marginal habitat and species known to occur in the area. |
| Birds | | | | | |
| <i>Anas platyrhynchos</i> | Mallard | TRPA (SI), LTBMU (MIS) | P | P | Presence of limited habitat and species is known to reside at Lake Tahoe. |
| <i>Haliaeetus leucocephalus</i> | Bald Eagle | USFWS (T), TRPA (SI), DFG (FP) | P | P | Presence of marginal roosting and/or foraging habitat. Species is known to breed and winter at Lake Tahoe. |
| <i>Pandion haliaeetus</i> | Osprey | TRPA (SI) | P | P | Presence of marginal roosting and foraging habitat. Species is known to breed at Lake Tahoe. |
| Not applicable | Waterfowl Species ² | TRPA | P | P | Presence of habitat. Several waterfowl species breed, winter or migrate through Lake Tahoe and the Project area. |
| Not applicable | Migratory Birds ³ | USFWS | P | P | Presence of various habitats. Utilization of Lake Tahoe and the Project area by a variety of breeding, wintering, or migrating species. |
| Fish | | | | | |
| <i>Oncorhynchus mykiss</i> | Rainbow Trout | LTBMU (MIS) | P | P | Presence of habitat and species known to reside in Lake Tahoe. |
| <i>Salvelinus fontinalis</i> | Brook Trout | LTBMU (MIS) | P | P | Presence of habitat and species known to reside in Lake Tahoe. |
| Plants | | | | | |
| <i>Arabis rectissima</i> var. <i>simulans</i> | Washoe Tall Rockcress | LTBMU (LSI) | P | A | None observed during 2001, 2002, 2004 ,and 2005 field surveys. |

Table 3. Special-Status Species with Potential to Occur in the BSA (continued)

| Scientific Name | Common Name | Status ¹ | Specific Habitat Present/ Absent | Species Presence/ Absence | Rationale |
|------------------------------|-------------------------|--|----------------------------------|---------------------------|---|
| <i>Botrychium ascendens</i> | Upswept Moonwort | LTBMU (S),USFWS | P | A | None observed during 2001, 2002, and 2004 field surveys. |
| <i>Botrychium crenulatum</i> | Scalloped Moonwort | LTBMU (S)) | P | A | None observed during 2001, 2002, and 2004 field surveys. |
| <i>Botrychium lineare</i> | Slender Moonwort | LTBMU (S) | P | A | None observed during 2001, 2002, and 2004 field surveys. |
| <i>Botrychium minganense</i> | Mingan Moonwort | LTBMU (S) | P | A | None observed during 2001, 2002, and 2004 field surveys. |
| <i>Botrychium montanum</i> | Western Goblin | LTBMU (S) | P | A | None observed during 2001, 2002, 2004, and 2005 field surveys. |
| <i>Epilobium howellii</i> | Subalpine Fireweed | LTBMU (S) | P | A | None observed during 2001, 2002 and 2004 field surveys. |
| <i>Rorippa subumbellata</i> | Tahoe Yellow Cress | TRPA (SI), LTBMU (S), USFWS (C), DFG (E) | P | A | Three plants observed in 2002 nearby. None observed during 2004 and 2005 field surveys. |
| <i>Peltigera hydrothyria</i> | Veined Water Lichen | LTBMU (S) | P | A | None observed during 2004 field surveys. |
| <i>Bruchia bolanderi</i> | Bolander's Candle Moss | LTBMU (S) | P | A | None observed during 2004 field surveys. |
| <i>Helodium blandowii</i> | Blandow's Helodium Moss | LTBMU (LSI) | P | A | None observed during 2004 field surveys. |
| <i>Meesia uliginosa</i> | Broad-nerved Hump-moss | LTBMU (S) | P | A | None observed during 2004 field surveys. |

¹Status Codes:

DFG (California Department of Fish and Game): E – Endangered Species, FP – Fully Protected, and CSC – Special Concern Species.

USFWS (US Fish and Wildlife Service): T – Threatened Species, E – Endangered Species, C - Candidate Species, and SC - Species of Concern.

LTBMU (Lake Tahoe Basin Management Unit): MIS - Management Indicator Species, S - Sensitive Species, and LSI – Species of Interest.

TRPA (Tahoe Regional Planning Agency): SI - Special Interest Species.

²Waterfowl: Defined by TRPA as birds of the families Anatidae (ducks), Pelecanidae (pelicans), Ardeidae (herons), Rallidae (rails), Laridae (gulls), Charadriidae (plovers), Scolopacidae (snipes) and Phalaropodidae (cormorants).

³Migratory Birds: As defined by the Migratory Bird Treaty Act 1918, as amended.

4.2 Natural Communities of Special Concern

Natural communities of special concern that occur in the BSA include urban-altered Jeffrey pine forest, LSOGs, SEZs, wetlands, and other waters of the United States. Each community is described here, along with an evaluation of Project impacts and what avoidance and minimization measures or mitigation will be implemented to avoid, reduce, or compensate for these impacts.

4.2.1 Urban-Altered Jeffrey Pine Forest

The dominant vegetation within the BSA is urban-altered Jeffrey pine forest, with a sparse montane mixed chaparral understory. The canopy is predominately Jeffrey pine, with ponderosa pine, white fir, and incense cedar providing secondary tree cover. This community is a composite of second- and third-growth forest remnants interspersed within residential and commercial development.

4.2.1.1 Survey Results

The BSA contains 313.79 hectares (775.4 acres) of urban-altered Jeffrey pine forest; 25.89 hectares (63.98 acres) of which occur in the Project elements. Table 4 summarizes the number of trees in each element. Appendix F summarizes the species, height, dbh, and condition of each tree inventoried. Appendix F also illustrates the location of each tree within each Project element.

Table 4. Project Element Tree Inventory Summary

| Project Element #¹ | Tree Quantity | # Cut Trees | LSOG Quantity |
|--------------------------------------|----------------------|--------------------|----------------------|
| 1 | 7 | 2 | 3 |
| 3 | 16 | 3 | 10 |
| 4 | 7 | 2 | 3 |
| 5 | 3 | 0 | 2 |
| 6 | 7 | 3 | 8 |
| 7 | 2 | 0 | 1 |
| 8 | 20 | 6 | 7 |
| 9 | 7 | 7 | 8 |
| 11 | 77 | 1 | 17 |
| 14 | 12 | 8 | 3 |
| 15 | 13 | 3 | 2 |
| 17 | 11 | 2 | 2 |
| 18 | 3 | 0 | 0 |
| 19 | 3 | 3 | 0 |
| 21 | 6 | 1 | 2 |
| 22 | 4 | 0 | 3 |
| 23 | 3 | 1 | 2 |
| 24 | 1 | 0 | 0 |
| 25 | 23 | 7 | 10 |
| 26 | 4 | 1 | 1 |
| 27 | 8 | 5 | 0 |
| 29 | 6 | 1 | 1 |
| 30 | 4 | 0 | 3 |
| 31 | 1 | 0 | 1 |
| 32 | 30 | 4 | 0 |
| 33 | 6 | 0 | 1 |
| 34 | 6 | 4 | 1 |
| TOTAL | 290 | 64 | 91 |

4.2.1.2 Avoidance and Minimization

Implementation of the Project will result in tree and understory vegetation removal and potentially incidental damage to trees and tree root systems. These and other impacts (described below) could directly and indirectly affect the Jeffrey pine community in the Project area. Table 5 describes avoidance and minimization measures designed to reduce or eliminate these impacts and identifies which ones will be implemented in all areas where construction activities are proposed within the Jeffrey pine community.

Table 5. Mitigation, Minimization, and Avoidance Measures (MMAs) for Regional Plant Species, Wildlife Species, and Natural Communities of Concern

| MMA # | Mitigation, Minimization, and Avoidance Measures (MMAs) |
|--------------|--|
| 1 | Identify, flag and/or fence environmentally sensitive areas (as shown on project plans) adjacent to designated work areas to prevent additional impacts to wetlands, riparian vegetation, waterways and conifers including LSOGs. The environmentally sensitive area boundary will be maintained throughout the construction period. |
| 2 | Identify, evaluate and flag all conifer tree species (including LSOGs) that could be impacted as a result of the proposed project elements. The final project design will reflect that no LSOGs (dbh>29") shall be removed as a result of the proposed project. |
| 3 | Comply with all terms of the ACOE GP16 or individual permit required for the proposed project. |
| 4 | Comply with TRPA Code of Ordinances and special terms and condition as outlined in the TRPA project permit. |
| 5 | Conduct regional species of concern surveys for plant and wildlife species prior to the onset of construction activities. A qualified botanist and biologist are required to conduct these surveys. Should any plant or wildlife regional species of concern be identified, the lead regulatory agency would be contacted for direction and guidance in protecting and managing these resources. |
| 6 | Fence root zone to exclude construction machinery. |
| 7 | Limit construction activities including land clearing, tree removal or other surface disturbance to occur outside the breeding season (May 15 - July 15). |
| 8 | Limit construction activities to occur outside fish spawning periods (June 15 to late August 30). |
| 9 | Limit construction activities to occur after high water flow within the vicinity of wetlands or other waters of the United States. |
| 10 | Remove existing weeds prior to construction. All construction equipment shall be cleaned of all potential weed sources (mud and vegetation) before entering the Lake Tahoe Basin. Utilize certified weed free fill within the project area. Post construction monitoring of sites disturbed as a result of construction shall occur for a period of three years following completion of the project. |
| 11 | Revegetate areas disturbed as a result of construction and areas identified as requiring vegetative improvements with native California, TRPA-approved plant species to reduce the potential for weedy plant species to become established and to maintain the biological character of the area that would support regional species of concern. |
| 12 | Consult with regulatory agencies to determine the appropriate replacement ratio for trees removed as a result of the proposed project. |
| 13 | Consult with regulatory agencies to determine the appropriate compensation or mitigation measures required should regional wildlife species of concern be unavoidably impacted. |

Data from the tree inventory and special-status species and community surveys conducted for this study have been used to determine which Project elements contain resources that warrant special protection and/or management action. To avoid removal or impacts to LSOGs and minimize the removal of smaller conifers within the forest, some proposed parking sites initially planned for this project were eliminated or modified. Discussion with TRPA (Jones 2005) further indicated that soil disturbance within a radius equal to three times the tree dbh may affect the tree's stability. Wherever possible, exclusion boundaries meeting these specifications will be established around all trees to be protected within the BSA.

4.2.1.3 Project Impacts

Approximately 64 trees (no LSOGs) would be removed from the Project area during construction (Table 4, Appendix F). Removal of these trees and cover vegetation, incidental tree damage, and disturbance of tree roots during construction and excavations will cause both direct indirect impacts to forest community. Tree removal will reduce the natural structural diversity of the area and the associated shelter and forage value the trees provide to wildlife species that use them. Tree and root damage also likely will result in increased susceptibility in the trees to disease and/or reduction of water and nutrient uptake that would potentially affect the long-term viability of the trees. The roots of at least 110 trees, including 67 LSOGs, would be so severely damaged that their stability would be threatened. Removal of trees and understory vegetation also could result in increased surface runoff, altered local hydrology, erosion, and subsequent sediment loading in Griff Creek, as well as an increase in airborne dust. Vegetation removal also may promote the invasion and spread of weedy species into the community.

These impacts would be limited to Project elements 1–35 (Figure 2) and would be associated with Project actions outside the paved rights-of-ways. Although this plant community within the Project area has been fragmented and urbanized, the further reduction of the plant and structural diversity of this Jeffrey pine forest would be contrary to the vegetation thresholds established by TRPA. This impact could be offset by implementing the above-described avoidance and minimization measures and by implementing compensatory mitigation.

4.2.1.4 Compensatory Mitigation

Trees removed for this Project will be mitigated through an appropriate replacement ratio (MMA #11, Table 5) to compensate for this impact to the Jeffrey pine community.

4.2.1.5 Cumulative Impacts

Cumulative impacts within the BSA have occurred to native vegetation/wildlife habitat as a result of past and present actions. The Jeffrey pine/urban and riparian vegetation habitats have been altered as a result of logging and recreational activities; and roadway, residential and commercial development. Table 6 lists recent and current projects within the Kings Beach Community.

**Table 6. Recent and Current Projects Identified
within the Kings Beach Community**

| Caltrans Transportation Projects | | |
|---|---------------------------------------|--------------------------|
| Project Title | County | Roadway |
| PLA 28 | Placer | SR 28 |
| PLA 267 | Placer | SR 267 |
| Placer County Projects | | |
| Project Title | Lead Agency | SCH# |
| Coordinated Resource Management and Planning for the Endangered Plant, Tahoe Yellow Cress | Placer County Planning Department | n/a |
| Restoration Project, Coon Street | Placer County Planning Department | n/a |
| North Tahoe Beach Center Replacement Project | Placer County Planning Department | n/a |
| Red Wolf Lodge, Phase V (increase units /acre from 15 to 18) | Placer County Planning Department | n/a |
| Erosion Control, Beaver Street | Placer County Planning Department | n/a |
| Replace signals SR 28 and 267 | Placer County Planning Department | n/a |
| Commercial Core Improvement Project | Placer County Planning Department | 2002112087 |
| KB Mixed Use Village | Placer County Planning Department | 2005082096 |
| KB Student Activity Center | Tahoe Truckee Unified School District | 2002042094 |
| Area Restoration Projects | Tahoe Conservancy | 2001068008 |
| Water Quality Improvement Project, Planning Grant | Tahoe Conservancy | 2000128334 |
| Fire Hazard Reduction Project | Tahoe Conservancy | 2000068001 |
| KB Elementary School Expansion | Tahoe Truckee Unified School District | 1997107177 1997042042 |
| KB Elementary School/Adopt-A-Watershed Program | Tahoe Conservancy | 1996104035 |
| Site Protection Projects | Tahoe Conservancy | 1995101616 |
| School Restoration Project | Tahoe Conservancy | 1994107639 |
| Restoration Enhancement Project | Tahoe Conservancy | 1993103936 |
| Recreation Enhancements | Tahoe Conservancy | 1993022021 |
| Erosion Control Project | Tahoe Conservancy | 1992101561 |
| Recreation Enhancement Project | Tahoe Conservancy | 1990104093 |
| Recreation Enhancement Project (Coon Street) | Tahoe Conservancy | 1990102403 |

Table 6. Recent and Current Projects Identified within the Kings Beach Community (continued)

| Tahoe Regional Planning Agency | | |
|---|--|--|
| Project Title | | Project # |
| Lake Tahoe Shorezone Ordinance Amendments | | n/a |
| Threshold Program | Project Name | Environmental Improvement Program Project # |
| Air Quality/Transportation | Class 2: SR 28 to SR 267 Summit | 748 |
| Air Quality/Transportation | KB Roadway, Curb/Gutter, Sidewalk, Bicycle Trail and WQ | 787 |
| Air Quality/Transportation | Placer County Transit Improvements | 816 |
| Fisheries | East of Kings Beach Boat Ramp Spawning Habitat Restoration | 532 |
| Fisheries | Griff Creek – Stream Restoration | 410 |
| Fisheries | Griff Creek | 658 |
| Fisheries | Lake Habitat Restoration Placer County | 974 |
| Recreation | KB SRA Public Pier | 619 |
| Soil Conservation/SEZ | Restore 40 Acres of SEZ – Placer County | 649 |
| Water Quality | Kings Beach Commercial Core | 10060 |
| Water Quality | Kings Beach Industrial | 766 |
| Water Quality | Kings Beach Residential Area Treatment – Phase II | 15 |
| Water Quality | SR 267 at Intersection of SR 28 | 997 |

Some of these projects include habitat modifications that contribute to the cumulative impacts to the Jeffrey pine forest in the area, including tree loss, habitat fragmentation, and introduction of weedy species. Similar urban improvement and expansion projects are reasonably foreseeable in the near future for the Kings Beach community and vicinity.

4.2.2 Late Seral/Old-Growth Community

The LSOG community is defined by the presence of large and/or old conifer trees (> 30" dbh). The majority of LSOGs within the BSA are Jeffrey and ponderosa pines; a few are incense cedar. Accordingly, this community is a natural subset of the Jeffrey pine community described above.

4.2.2.1 Survey Results

Ninety-one LSOGs were identified within the BSA (Table 4). Table 4 lists the number of LSOGs in each Project element, and Appendix F provides figures showing their locations and potential for Project action impacts to each tree.

4.2.2.2 Avoidance and Minimization

Once the locations of all the LSOGs were determined, the Project plans were modified to avoid cutting any LSOG. To the extent practicable, direct and indirect impacts to these trees and/or their root systems will be avoided or minimized by implementation of MMAs 1–7 and 12 (Table 5).

4.2.2.3 Project Impacts

No removal of LSOGs is expected to occur as a result of the proposed SR 28 improvements within existing paved rights-of-way. Permanent and indirect impacts to some LSOGs located within or adjacent to rights-of-way would occur as the result of disturbance to tree root zones. These impacts include diminished tree health due to loss of surface root mass for water and nutrient uptake, and the potential for increased susceptibility to disease. Impacts to LSOGs would be the same for each Project alternative.

Additionally, no removal of LSOGs is expected to occur as a result of the proposed on- and off-street parking elements. Permanent and indirect impacts to on-site LSOGs and adjacent parcel LSOGs would occur from installation of pavement for proposed off-street parking elements. These direct impacts include disturbance to tree root zones and potential alteration to existing hydrology that currently “waters” the surrounding vegetation. Indirect impacts include increased susceptibility to disease and the loss of water and nutrient uptake that would impact the overall health of LSOGs. LSOGs with the potential to be indirectly affected by on- and off-street parking elements are identified in the Kings Beach Tree Inventory (Appendix F).

4.2.2.4 Compensatory Mitigation

No LSOGs would be removed as a result of the Project. Compensatory mitigation for direct and indirect impacts to existing LSOGs would be provided through adjusted tree replacement ratios (MMA #12, Table 5) as determined in consultation with TRPA.

4.2.2.5 Cumulative Impacts

Comparison of the current distribution pattern of LSOGs in the BSA with the existing pattern of residential and commercial development in Kings Beach shows that past urbanization of the area has undoubtedly resulted in the loss of numerous LSOGs. Current and future development projects are also likely to result in unavoidable removal of some of the remaining trees in Kings Beach and vicinity.

4.2.3 Stream Environment Zones

An SEZ as defined by TRPA includes the presence of surface water or groundwater that supports the biological and physical characteristics of the area. Figure 3 shows the location and size of the Griff Creek SEZ in the BSA.

4.2.3.1 Survey Results

TRPA verified SEZs within the BSA include the Griff Creek drainage south to and including the Lake Tahoe shoreline and shore zone, and remnants of historical drainages that likewise terminate at Lake Tahoe. TRPA Land Capability verification identifies approximately 84.6 hectares (209 acres) of SEZ that are illustrated on Figure 3.

4.2.3.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to SEZs within the BSA, locations of TRPA-verified SEZs and setbacks are shown on the plan sheets. Upon selection of the preferred alternative, construction-level plan sheets and special provisions will also show locations of and provide direction for the protection of environmentally sensitive areas, including SEZs that require the implementation of fencing and/or other MMAs indicated in Table 5.

4.2.3.3 Project Impacts

SR 28 improvements are proposed within and adjacent to TRPA-verified SEZs. Most improvements are designated in existing, paved highway rights-of-way and would not impact SEZs as the amount of hardscape would not increase, vegetation would not be removed, and hydrology would not be altered. Impacts to SEZs would be the same for each SR 28 alternative.

On-street parking is proposed within the SEZ boundary near the intersection of Trout Avenue and Coon Street, and near the intersection of Chipmunk Street and SR 28. Permanent and direct impacts to the verified SEZ would occur as the result of the removal of existing vegetation, alterations to existing hydrology, and installation of pavement. Indirect effects due to vegetation removal include increased sediment loading during runoff events, an increase in airborne dust, and increased potential for the establishment of weedy plant species.

4.2.3.4 Compensatory Mitigation

Implementation of MMAs 11 and 12 (Table 5) will provide compensatory mitigation for direct and indirect impacts to the SEZ within the Project area.

4.2.3.5 Cumulative Impacts

Cumulative impacts to SEZs within the BSA have occurred as a result of past and present activities including logging and recreational activities, roadway construction and residential and commercial development. In particular, the Griff Creek SEZ/watershed has been affected significantly from past and present activities, not only in the BSA but also in the watershed area surrounding Kings Beach. The relocation of perennial and ephemeral/intermittent streams and changes in the adjacent upland vegetation community composition and condition have affected the supporting hydrology for SEZs. Fragmentation, removal, and damage to SEZ vegetation and the introduction of non-native vegetation (including landscape and weedy plant species) have altered the SEZ landscape.

Reasonably foreseeable future development activities within the BSA area, including the construction of proposed drainage facilities in existing right-of way are intended to improve water quality and would therefore have a negligible impact to SEZs. The mitigation measures discussed in Table 5 would assist in reducing the potential cumulative vegetation impacts to SEZ resources. The implementation of the proposed Projects will result in improved water quality and wildlife habitat, thereby providing net benefits to SEZs of Lake Tahoe and Griff Creek within the BSA.

4.2.4 Wetlands and Other Waters of the United States

Wetlands and other waters of the United States (perennial and intermittent streams) occur within the BSA.

4.2.4.1 Survey Results

In 2001, the Corps verified 0.06 hectare (0.146 acre) of MACTEC-delineated jurisdictional wetlands, one perennial stream, and a portion of one intermittent drainage in the BSA (see Figure 3). Additional wetlands and other waters of the United States delineations were conducted by MACTEC in 2002, 2004, and 2006 (Figure 3). These areas have not yet been verified by the Corps.

4.2.4.2 Avoidance and Minimization

All wetlands and waters of the United States in the BSA will be avoided during construction of the Project. Table 5 lists the MMAs that will be implemented to avoid and minimize potential impacts to these resources.

4.2.4.3 Project Impacts

SR 28 improvements are proposed adjacent to Griff Creek. However, these improvements will occur in existing, paved highway rights-of-way and would not impact this jurisdictional resource under any proposed alternative.

On-street parking is proposed on Deer Street, Trout Avenue near the intersection of Trout Avenue and Coon Street, Salmon Avenue, and Chipmunk Street; and ditch lining and revegetation are proposed on Bear Street. These proposed improvements occur where roadside drainages are located that may be potentially jurisdictional other waters of the United States.

Two proposed parking elements are located adjacent to potential jurisdictional waters of the United States. These are rock-lined drainage ditches that support some herbaceous plant species (Figure 3). These Project elements include 0.08 hectare (0.217 acre) of potential jurisdictional resources.

Permanent direct and/or temporary direct impacts to these resources would occur as the result of alterations to existing hydrology, removal of wetland vegetation, root zone disturbance of shrubs and trees in or adjacent to these resources, and permanent alterations to hydrology. Indirect impacts from vegetation removal would include increased sediment loading during runoff events, an increase in airborne dust, and increased potential for establishment of weedy plant species.

4.2.4.4 Compensatory Mitigation

MMA 11 and 12 (Table 5) would provide compensation for Project impacts to wetlands and waters of the United States within the BSA.

4.2.4.5 Cumulative Impacts

Cumulative impacts to wetlands and other waters of the United States in the BSA have occurred from past and present actions, including logging and recreational activities, roadway construction, and residential and commercial development. These resources include the Griff Creek watershed, intermittent and/or ephemeral streams, and Lake Tahoe. Relocation of perennial and ephemeral/intermittent streams, and changes in the adjacent upland vegetation community composition and condition have affected the supporting hydrology, as well as the continuity of wetlands and other waters of the United States. Additionally, the introduction and establishment of non-native vegetation, including landscape and weedy plant species, have altered plant species composition within wetlands and Lake Tahoe. Reasonably foreseeable future impacts to these resources include additional urbanization and development activities in Kings Beach and the vicinity. Implementation of revegetation and hydrology improvement mitigation with these projects would potentially improve the water quality and general conditions of the existing wetlands in the BSA.

4.3 Special-Status Plant Species

The vegetation communities within the BSA provide potential habitat for a variety of special-status plant species (Table 3).

In the more mesic habitats (e.g., SEZs and wetlands), these include upswept moonwort, scalloped moonwort, mingan moonwort, subalpine fireweed, veined water lichen, Bolander's candle moss, three-ranked hump-moss and broad-nerved hump-moss. Washoe tall rockcress and western goblin may occur within upland coniferous forest, and Tahoe yellow cress is only known to occur along the shore of Lake Tahoe.

Approximately 0.09 hectare (0.218 acre) of mesic and 25.89 hectares (63.98 acres) of upland habitat are present within the BSA that may be affected as a result proposed on- and off-street Project elements.

4.3.1 Washoe Tall Rockcress

Washoe tall rockcress is an LTBMU Species of Interest. It is endemic to the north half of the Carson Range, (Douglas and Carson City Counties, Nevada), and is found growing in mature, open Jeffrey pine dominated forests, often on recovering, lightly disturbed soils with a thin litter layer (Gross 2005, NNHP 2005). It is known to occur at elevations ranging from 1,839 m (6,035 ft) to 2,240 m (7,350 ft) on dry, sandy granitic or andesitic soils on gentle slopes of all aspects.

4.3.1.1 Survey Results

Suitable habitat for Washoe tall rockcress occurs in open Jeffrey pine forest remnants within the Project area, particularly where soils are lightly disturbed on proposed parking area parcels. However, this species was not observed within the BSA during any of the 2001, 2002, 2004 and 2005 field surveys. An unidentified rockcress observed during the 2004 field investigation was determined not to be Washoe tall rockcress, based on the lack of multi-forked hairs on the leaf margins, which is a diagnostic feature.

4.3.1.2 Avoidance and Minimization

To avoid and minimize impacts to Washoe tall rockcress within the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.1.3 Project Impacts

Because Washoe tall rockcress is not present in the Project area, no impacts would occur to this species. surveys

4.3.1.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.1.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.2 Upswept Moonwort

Upswept moonwort is an LBTMU Sensitive Species. All observations of moonwort species should be reported to the LTBMU for verification (Gross 2004). It is a small primitive fern typically found in mesic meadows and riparian areas at elevations between 1,499.62 and 1,828.8 m (4,920 and 6,000 ft) or more. It often occurs under the willow canopy and in the splash zone of creeks with mosses. Associated herbaceous species include false Solomon's seal (*Smilacina* sp.), mountain strawberry (*Fragaria virginiana*), golden-fruit sedge (*Carex aurea*),

and Hasse's sedge (*C. hassei*) (Durham 2003). The fertile period for this species occurs from late spring through summer, with August generally providing the optimal survey time.

4.3.2.1 Survey Results

Suitable habitat for this species occurs under the willow canopy associated with Griff Creek in the Project area. However, this species was not observed in the BSA during the 2001, 2002, and 2004 field surveys.

4.3.2.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to upswept moonwort within the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.2.3 Project Impacts

Because upswept moonwort is not present in the Project area, no impacts would occur to this species.

4.3.2.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.2.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.3 Scalloped Moonwort

Scalloped moonwort is an LTBMU Sensitive Species. It is found in ponderosa pine forests as well as riparian environments such as freshwater wetlands, bogs and fens, meadows, and seeps (CalFlora 2003). It occurs primarily in the Great Basin, with populations also occurring along the Sierra Nevada, at elevations from approximately 1,188.72 m to 2,499.36 m (3,900 to 8,200 ft). This species has been found in the Lake Tahoe Basin (Durham 2003). The fertile period for this species occurs during late spring, with mid to late summer generally providing the optimal survey window.

4.3.3.1 Survey Results

Suitable habitat for this species may occur in the BSA adjacent to Griff Creek, or where wetlands were identified. However, this species was not observed in the BSA during the 2001, 2002, and 2004 field surveys.

4.3.3.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to scalloped moonwort within the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This

species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.3.3 Project Impacts

Because scalloped moonwort is not present in the Project area, no impacts would occur to this species.

4.3.3.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.3.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species, and there would be no cumulative impacts to this species.

4.3.4 Slender Moonwort

Slender moonwort is an LBTMU Sensitive Species. It is a small perennial fern that had been found mostly at higher elevations (about 1,499.92 to 2,999.84 m [about 4,921 to 9,842 ft]) in the mountains of western states, including Alaska, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming. Habitats are variable and include meadows, woods, woodlands, grassy horizontal ledges on north-facing limestone cliffs, and level upland sections of a river valley. It is also possibly a colonizer of semi-mesic, disturbed, early seral habitats (NatureServe 2005). The fertile period for this species generally occurs from late June through July, with mid to late summer typically providing the optimal survey time—dependent on elevation.

4.3.4.1 Survey Results

Given the wide range of potential habitats for this species, suitable habitat may occur in the BSA near Griff Creek and other drainages, as well as within the urban-altered Jeffrey pine habitat type. Although both potential habitat types were included in the surveys, no plants were observed in the BSA during the 2001, 2002, 2004, and 2005 field surveys.

4.3.4.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to slender moonwort in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.4.3 Project Impacts

Because slender moonwort is not present in the Project area, no impacts would occur to this species.

4.3.4.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.4.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.5 Mingan Moonwort

Mingan moonwort is an LTBMU Sensitive Species. Suitable habitat for this rare species occurs within yellow pine forest along streams from 1,499.92 to 1,799.84 m (4,921 to 5,905 ft) in elevation. The nearest known occurrence is in Alpine County and was documented 1967. The fertile period for this species occurs throughout summer, with July through September generally providing the optimal survey window.

4.3.5.1 Survey Results

Potential habitat for this plant species occurs in the BSA near Griff Creek and other drainages. However, no plants were observed in the BSA during the 2001, 2002, and 2004 field surveys.

4.3.5.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to Mingan moonwort in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located in the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.5.3 Project Impacts

Because mingan moonwort is not present in the Project area, no impacts would occur to this species.

4.3.5.4 Compensatory Mitigation

This species was not located in the Project area. No compensatory mitigation is required.

4.3.5.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.6 Western Goblin

Western goblin is an LTBMU Sensitive Species. This species is known to occur in shady, coniferous woods from 1,499.92 to 1,799.84 m (4,921 to 5,905 ft) in elevation. The fertile

period for this species generally occurs in mid summer, with leaves appearing in late spring to late summer. August through September provide the optimal survey time.

4.3.6.1 Survey Results

While unlikely, suitable habitat for western goblin may occur on a few undeveloped parcels in the BSA where the forest canopy is denser and less disturbed. No western goblin plants were observed in the BSA during the 2001, 2002, 2004, and 2005 field surveys.

4.3.6.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to western goblin in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located in the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.6.3 Project Impacts

Because western goblin is not present in the Project area, no impacts would occur to this species.

4.3.6.4 Compensatory Mitigation

This species was not located in the Project area. No compensatory mitigation is required.

4.3.6.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.7 Subalpine Fireweed

Subalpine fireweed is an LBTMU Sensitive Species. This delicate perennial flowering plant is found from 1,920.24 to 2,468.88 m (6,300 to 8,100 ft) in elevation in wet, boggy areas; meadows; and swales with grasses, mosses, and willows. This species is known to occur throughout the Sierra Nevada. Although no known occurrences have been documented in the Lake Tahoe Basin, it is possible that this small plant has simply been overlooked. The species flowers during the summer, with July through August generally providing the optimal survey window.

4.3.7.1 Survey Results

Suitable habitat for this species occurs throughout the BSA in low-lying swales associated with SEZs of Griff Creek and in areas identified as wetlands. However, no subalpine fireweed were observed during the 2001, 2002, and 2004 field surveys. An unidentified *Epilobium* species encountered during the 2002 survey was determined not to be subalpine fireweed, based on the lack of glands on the stems, which is a diagnostic feature of the species.

4.3.7.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to subalpine fireweed in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.7.3 Project Impacts

Because subalpine fireweed is not present in the Project area, no impacts would occur to this species.

4.3.7.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.7.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.8 Tahoe Yellow Cress

Tahoe yellow cress is a USFWS Candidate Species, a TRPA Special Interest Species and an LBTMU Sensitive Species. The species grows only on beaches around the perimeter of Lake Tahoe (Ferreira 1987). Common plant species observed colonizing the backshore area exposed by low water levels included short-rayed alkali aster (*Aster frondosus*), irisleaf rush (*Juncus xiphioides*), and curlytop smartweed (*Polygonum lapathifolium*). The species flowers and fruits during midsummer, with June through late August generally providing the optimal survey window. Extensive beach grooming and recreational activities conducted within the shore zone of the BSA makes this area marginal habitat for Tahoe yellow cress (Figure 4).

4.3.8.1 Survey Results

Suitable habitat for Tahoe yellow cress does occur in and adjacent to the Project area, including the coarse sands of active beaches, stream inlets, beach dunes, and backshore depressions—all within a few feet of the existing water table. No Tahoe yellow cress was observed during the MACTEC 2001, 2002, and 2004 field surveys. However, surveys conducted by BMP Ecosciences between 1982 and 2004 located three individual plants in 2002 between Stateline Point and the California side of the Stateline. This location is east of the BSA. Another survey on September 6, 2005, did not locate any individuals of this plant species in the BSA (Stanton 2006).

4.3.8.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to Tahoe yellow cress in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.8.3 Project Impacts

Because Tahoe yellow cress is not present in the Project area, no impacts would occur to this species. Note that continual beach grooming and high-intensity recreational use preclude colonization of the shore zone in the BSA by this species.

4.3.8.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.8.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.9 Veined Water Lichen

Veined water lichen is an LBTMU Sensitive Species. Veined water lichen is known to occur at lower to mid montane elevations and is expected to be found in the Tahoe Basin (Petersen 2003). It is found submerged in small, freshwater, perennial streams with little fluctuations in water level and unsusceptible to scouring.

4.3.9.1 Survey Results

The proposed Project area may contain suitable habitat for veined water lichen within portions of Griff Creek. However, no veined water lichen was observed in the BSA during the 2004 field investigation.

4.3.9.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to veined water lichen in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.9.3 Project Impacts

Because veined water lichen is not present in the Project area, no impacts would occur to this species.

4.3.9.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.9.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.10 Bolander's Candle Moss

Bolander's candle moss is an LBTMU Sensitive Species. It is found in wet meadow habitats of mixed conifer and subalpine communities that are ephemeral, such as the sides of erosional ditches or streams (USDA 2004b). This species prefers bare soils and is sometimes found in moist, disturbed openings with grasses. It is not known to occur in the Lake Tahoe Basin (Gross 2005).

4.3.10.1 Survey Results

The proposed Project area may contain suitable habitat for Bolander's candle moss in the vicinity of Griff Creek and where wetlands and roadside ditches occur. However, this species was not observed in the BSA during the 2004 field investigation.

4.3.10.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to Bolander's candle moss in the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.10.3 Project Impacts

Because Bolander's candle moss is not present in the Project area, no impacts would occur to this species.

4.3.10.4 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.10.5 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.10.6 Blandow's Helodium Moss

Blandow's helodium moss is an LBTMU Species of Interest. Habitat for this species consists of fens (mineotrophic peatlands), wet meadows, and underneath the willow canopy along streams on saturated soils (Gross 2005). This species is not known to occur in the Lake Tahoe Basin.

4.3.10.7 Survey Results

The BSA may contain suitable habitat for Blandow's helodium moss adjacent to Griff Creek and where wetlands were identified. However, this species was not observed within the BSA during the 2004 field investigation.

4.3.10.8 Avoidance and Minimization Efforts

To avoid and minimize impacts to Blandow's helodium moss within the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential

habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.10.9 Project Impacts

Because Blandow's helodium moss is not present in the Project area, no impacts would occur to this species.

4.3.10.10 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.10.11 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.3.10.12 Broad-nerved Hump-moss

Broad-nerved hump-moss is an LBTMU Sensitive Species. Habitat for this moss consists of bogs and wet areas, often on raised hummocks in wet meadows in the Sierra Nevada, at elevations up to 2,499.36 m (8,200 ft). It is not known to occur in the Lake Tahoe Basin.

4.3.10.13 Survey Results

The proposed Project area may contain suitable habitat for broad-nerved hump-moss where waters and wetlands were identified, including Griff Creek. However, this species was not observed within the BSA during the 2004 field investigation.

4.3.10.14 Avoidance and Minimization Efforts

To avoid and minimize impacts to broad-nerved hump-moss within the BSA, surveys were conducted to verify presence or absence and to determine availability and quality of potential habitat. This species was not located within the Project area. Therefore, no additional avoidance or minimization measures are required.

4.3.10.15 Project Impacts

Because broad-nerved hump-moss is not present in the Project area, no impacts would occur to this species.

4.3.10.16 Compensatory Mitigation

This species was not located within the Project area. No compensatory mitigation is required.

4.3.10.17 Cumulative Impacts

It is unknown whether this species occurred historically within the Project area. Because it is currently not known to occur there, the present Project and foreseeable future projects are not expected to impact this species. Therefore, there would be no cumulative impacts to this species.

4.4 Special-Status Wildlife Surveys

The special-status wildlife species that occur or potentially occur with the Jeffrey pine/urban and montane riparian habitats of the BSA include black bear, waterfowl, bald eagle, osprey, migratory birds, and brook and rainbow trout. The local status of each species and the potential impacts from Project actions are discussed below.

4.4.1 Black Bear

The black bear is listed as an LBTMU Management Indicator Species. Black bear are common throughout the western mountain regions and prefer stands of dense forest, brush, riparian, and wet meadow habitats (Alhorn 1990).

4.4.1.1 Survey Results

The Jeffrey pine and riparian habitats in the BSA generally provide poor-quality habitat for the black bear. However, black bear are common residents of the Lake Tahoe Basin and frequent residential and urban areas in search of garbage. It is therefore likely that the black bear infrequently occurs within the BSA (MACTEC 2003a). Nevertheless, no bears or bear sign were observed in the Project area during any of the 2001, 2002, 2004, or 2005 field surveys.

4.4.1.2 Avoidance and Minimization

Field surveys were conducted to determine the availability and quality of black bear habitat and potential occurrence of black bear within the BSA. This species was not observed within the Project area but is expected to occur occasionally in the area while in search of garbage. Local management of urbanized bears is the responsibility of DFG. If a bear were to come into the Project area, DFG would be contacted.

4.4.1.3 Project Impacts

No impacts to black bear or are likely to occur from Project actions due to the infrequent, transient occurrence of the species in the area.

4.4.1.4 Compensatory Mitigation

Due to the infrequency of occurrence of black bears in the area, no Project impacts are expected and no compensatory mitigation is required.

4.4.1.5 Cumulative Impacts

Most residential and commercial development in the Tahoe Basin contributes to the cumulative habitat loss for black bear. Historical habitat losses in Kings Beach and vicinity are proportional to the existing amount of development. Current and reasonably foreseeable habitat loss and fragmentation will continue in direct proportion to the amount of development.

4.4.2 Waterfowl

Waterfowl are defined by TRPA as Special Interest Species and include the family Anatidae (ducks and geese), Pelicanidae (pelicans), Ardeidae (herons and egrets), Rallidae (rails), Laridae (gulls), Charadriidae (plovers), Scolopacidea (snipes) and Phalaropodidae (cormorants). The mallard is identified by the LTBMU as a Management Indicator Species. Habitats for waterfowl, including mallard, in the Lake Tahoe Basin include marshes, wet meadows, ponds, creeks, and Lake Tahoe. Nesting activities occur from approximately March 1 through June 30 (USDA 1988).

4.4.2.1 Survey Results

Suitable habitat for waterfowl within and adjacent to the BSA includes the Griff Creek stream channel and the beach and waters of Lake Tahoe. Common loon, Canada geese, mallard, common merganser, and California gull were observed during the 2001 and 2002 field surveys along the lakeshore. Canada geese and mallards also were observed during the 2004 and 2005 field surveys.

4.4.2.2 Avoidance and Minimization Efforts

To identify measures needed to avoid and minimize the impacts to waterfowl and waterfowl habitat, field surveys were conducted to determine the availability and quality of waterfowl habitat and potential occurrence of waterfowl within the BSA. Because no impacts are likely to waterfowl from Project actions, no avoidance and minimization measures are required.

4.4.2.3 Project Impacts

No impacts are expected to occur to waterfowl as a result of the proposed Project.

4.4.2.4 Compensatory Mitigation

Because no impacts are expected to occur to waterfowl from this Project, no compensatory mitigation is required.

4.4.2.5 Cumulative Impacts

Suitable habitat for waterfowl, particularly nesting habitat, is limited within the Lake Tahoe Basin. Significant historical losses have occurred with the drainage and conversion of wetlands to developed areas. Continued development around the lake likely will contribute to additional cumulative loss of this habitat. Human use of the beaches and waters of Lake Tahoe also contribute to habitat loss through direct disturbance.

4.4.3 Bald Eagle

The bald eagle is listed as a Federally Threatened Species, a California Endangered Species, a TRPA Special Interest Species, and an LBTMU Management Indicator Species. Habitat for the bald eagle consists of mature coniferous forests, including Jeffrey pine habitat, usually within 1 mile of and in clear view of large bodies of water (Lehman 1979, 1980; Golightly 1991).

4.4.3.1 Survey Results

Foraging, nesting, and wintering habitat suitable for the bald eagle is located within the Lake Tahoe Basin and occurs primarily along undeveloped shorelines. A pair of bald eagles has been confirmed nesting, within the last 8 years, on the south and west shores of Lake Tahoe. Prior to the current nesting activity, the last known nesting attempt was approximately 27 years ago (Laves, Romsos 1998).

Suitable bald eagle nesting, foraging, and wintering habitat is not present in the BSA due to the high amount of human development and disturbance (MACTEC 2003a). Although no observations of bald eagles have been recorded within the Project area, roosting habitat is available (Spaulding 2004, Gordon 2004). No bald eagles were observed in the BSA during the 2001, 2002, 2004, and 2005 field surveys.

4.4.3.2 Avoidance and Minimization

To avoid and minimize the impacts to bald eagle and bald eagle habitat, field surveys were conducted to determine the availability and quality of bald eagle habitat and the potential for occurrence of bald eagle within the BSA. No bald eagles were observed during the surveys, nor was there suitable foraging, nesting, and wintering habitat for the eagles. However, the tallest trees in the Jeffrey pine community (mostly LSOGs) do provide suitable roosting habitat. All of these trees were mapped, and the Project design was modified to avoid removal of any LSOG.

4.4.3.3 Project Impacts

No impacts to bald eagle foraging, nesting, or wintering habitat would occur in the BSA because no suitable habitat is available there. However, the taller trees of the Jeffrey Pine forest do provide suitable roosting habitat. Removal of these trees would reduce the quality of this habitat for the eagles. Additionally, construction noise and activity would temporarily elevate the existing disturbance level in the area.

4.4.3.4 Compensatory Mitigation

No impacts to bald eagles are expected to result from this Project. No compensatory mitigation is required.

4.4.3.5 Cumulative Impacts

Suitable habitat for bald eagle, including nesting habitat, is limited within the Lake Tahoe Basin. Significant historical losses of use areas have undoubtedly occurred with the expansion of urbanization and recreational development. Continued development around the lake will likely contribute to additional cumulative loss of this habitat, although nesting of bald eagles has recently re-occurred in the Basin. Minimization of habitat loss through such programs as TRPA's LSOG preservation and regulated development may benefit the bald eagle through habitat preservation and enhancement. However, human use of the beaches and waters of Lake Tahoe is likely to continue into the future, which would contribute to additional habitat loss through direct disturbance.

4.4.4 Osprey

The osprey is a TRPA Special Interest species. Suitable nesting and foraging habitat for the osprey includes open forests, including Jeffrey pine habitat, with large snags for nest sites located near open water (Poole 1989). Nesting activities extend from March 1 through August 15 (USDA 1988). Osprey generally nest along the lakeshores of Lake Tahoe and can be seen foraging throughout the basin.

4.4.4.1 Survey Results

Suitable nesting or foraging habitat is not present in the BSA because of the high amount of urban development and human disturbance. No known osprey nesting territories are located within or adjacent to the Project area (Spaulding 2004, Gordon 2004). One osprey was seen flying over the BSA during the 2002 field investigation; and none were observed during the 2001, 2004, and 2005 field surveys.

4.4.4.2 Avoidance and Minimization Efforts

To avoid and minimize the impacts to osprey and osprey habitat, field surveys were conducted to determine the availability and quality of osprey habitat and the potential for occurrence of osprey in the BSA. No osprey were observed using the BSA during the surveys, nor was there suitable foraging, nesting, and wintering habitat for the eagles. However, the tallest trees in the Jeffrey pine community (mostly LSOGs) could provide suitable roosting habitat. All of these trees were mapped, and the Project design was modified to avoid removal of any LSOG.

4.4.4.3 Project Impacts

No impacts to nesting or foraging osprey habitat would occur because no foraging or nesting habitat occurs within the BSA. However, the taller trees of the Jeffrey Pine forest could provide suitable roosting habitat for ospreys. Removal of these trees would reduce the quality of this habitat for their use. Additionally, construction noise and activity would temporarily elevate the existing disturbance level in the area.

4.4.4.4 Compensatory Mitigation

No impacts to osprey are expected to result from this Project. No compensatory mitigation is required.

4.4.4.5 Cumulative Impacts

Suitable habitat for osprey is limited within the Lake Tahoe Basin. Historical loss of use areas undoubtedly has occurred with the expansion of urban and recreational development. Continued development around the lake will likely contribute to additional cumulative loss of this habitat.

4.4.5 Migratory Birds

As stated in the USFWS letter of consultation (Appendix D), the agency is responsible for conservation and management of migratory birds under the Migratory Bird Treat Act (MTBA) of 1918, as amended (16 U.S.C. 703 *et. seq.*). Migratory birds include all species native to the

United States, including the majority of the species that are permanent and seasonal residents of the Lake Tahoe Basin.

4.4.5.1 Survey Results

Migratory birds are present during all seasons and occur in all habitats within the BSA.

Migratory birds, including migrating and resident species, were observed throughout the Jeffrey pine/urban and montane riparian habitats during all survey periods. No special-status migratory species were observed during any of the spring (April and May), summer (June and July), or fall (September and October) survey periods. A complete list of the species observed is presented in Appendix B.

4.4.5.2 Avoidance and Minimization Efforts

To avoid and minimize impacts to migratory birds and migratory bird habitat, field surveys were conducted to determine the quality of the existing Jeffrey pine/urban and montane riparian habitats that support a variety of these bird species. In addition, those bird species observed within these habitats were identified and recorded to determine the presence or absence of regional species of concern. Other special-status species, including the American dipper (*Cinclus mexicanus*) and white-headed woodpecker (*Picoides albolarvatus*), and other common bird species reside in or migrate through the BSA. The results of these surveys assisted in the planning process and special protections or management of birds and their habitats.

A tree inventory was conducted to identify all conifer species, their dbh, height, and condition to assist in selection and design of proposed parking lots. Parking lot designs were developed to eliminate the need to remove LSOGs and minimize the number of other conifers to be removed, thereby avoiding impacts to bird species that prefer a coniferous forest habitat and have adapted to the Jeffrey pine/urban habitat within the BSA.

4.4.5.3 Project Impacts

Impacts from proposed SR 28 improvements (occurring within the highway right-of-way) are not expected to directly impact migratory birds. Permanent and direct impacts to migratory bird habitat would occur from proposed on- and off-street Project elements that result in the removal of vegetation (including trees). Migratory bird habitat within the BSA consists of approximately 313.79 hectares (775.4 acres) of Jeffrey pine forest and 4.45 hectares (11 acres) of riparian habitat. On- and off-street parking elements could impact approximately 25.89 hectares (63.98 acres) of migratory bird habitat.

Direct, permanent, and temporary impacts to area birds would result from construction activities associated with proposed on- and off-street Project elements. Direct and permanent impacts to nesting birds and their young would occur from disturbance that results in abandonment of a nest and/or death of the adults and/or their young. Direct and temporary impacts also could result from construction activities and noise disturbance that temporarily displace foraging adults.

4.4.5.4 Compensatory Mitigation

Compensatory mitigation for direct and indirect impacts to migratory bird habitat would be provided through revegetation of disturbed areas and adjusted tree replacement ratios (MMAs 11 and 12, Table 5) as determined in consultation with TRPA.

4.4.5.5 Cumulative Impacts

Suitable habitat for migratory birds occurs throughout the Lake Tahoe Basin. Historical loss of use areas undoubtedly has occurred with the expansion of urban and recreational development. Continued development around the lake will likely contribute to additional cumulative loss of this habitat for many migratory species.

4.4.6 Trout

Griff Creek is listed as a Priority 2 Watershed by TRPA and is considered a migratory stream for fish. Rainbow and brook trout are listed as a Management Indicator Species by the LTBMU. Neither species of trout is native to Lake Tahoe. Habitat for the brook trout includes small to large streams and alpine lakes, where it spawns in the fall (USDA 1988). Rainbow trout prefer habitat that consists of medium to large streams and some large lakes (USDA 1988).

4.4.6.1 Survey Results

The montane riparian habitat (2.69 hectares [6.65 acres]) of the lower stream channels provides aquatic habitat and protective cover for resident fish. Griff Creek, where rainbow and brook trout may occur, has been identified as a stream in need of restoration (TRPA 2004). Brook trout were visually observed in Griff Creek during only the 2002 field inventories. No rainbow trout were identified during any field inventories (2001, 2002, and 2004).

4.4.6.2 Avoidance and Minimization

To avoid and minimize impacts to brook and rainbow trout and their habitat, field surveys were conducted to determine the extent of trout habitat within the BSA and record any observations of trout. The only trout habitat within the BSA is Griff Creek.

Avoidance and minimization measures to avoid impacts to trout in the Project area would be provided by limiting construction activities to occur outside fish spawning periods and limiting construction activities to occur after high water flow within the vicinity of wetlands and other waters of the United States (MMAs 8 and 9, Table 5).

4.4.6.3 Project Impacts

Rainbow and brook trout habitat within the BSA is limited to Griff Creek. Noise and disturbance from SR 28 construction activities could displace trout from the lower portion of Griff Creek adjacent to the roadway. Impacts to the trout from each SR 28 alternative would be the same. Direct impacts to fish and fish habitat from on- and off-street Project elements are not expected to occur because no habitat occurs within those portions of the BSA. However, some impacts from increased siltation could occur from erosion of areas where vegetation has been removed or the hydrology has been altered. Any improvements to erosion control and water quality as a result of SR 28 or on- and off-street Project elements would result in a positive long-term, direct impact to fish and fish habitat.

4.4.6.4 Compensatory Mitigation

Compensatory mitigation for direct and indirect impacts in construction areas where erosion could affect the water quality of Griff Creek would be provided through revegetation of areas disturbed as a result of construction activities (MMA 11 and 12, Table 5) as determined in consultation with TRPA.

4.4.6.5 Cumulative Impacts

Suitable habitat for trout is found in streams and rivers throughout the Lake Tahoe watershed. Historical loss of use areas has undoubtedly occurred in some areas with the expansion of urban and recreational development. Continued development around the lake will likely contribute to some additional cumulative loss of this habitat. However, implementation of water quality and habitat enhancement BMPs during Project implementation would improve trout habitat in many areas.

4.4.7 Weedy Plant Species

Weedy plant species are classified at different levels of concern, noxious being the most invasive and difficult to eradicate. Federally listed noxious weeds are defined as any plant of a foreign origin that is new to or not widely prevalent in the United States, and that can directly or indirectly injure crops, other useful plants, livestock, poultry, or other interests of agriculture—including irrigation, navigation, fish and wildlife resources, or the public health. California noxious weeds are defined as any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species—and that is difficult to control or eradicate. Other levels of concern identified by the State of California and the Lake Tahoe Basin include invasive and exotic (non-native introduced) plant species.

4.4.7.1 Survey Results

No established populations of federally listed noxious weeds were identified in the BSA. Bull thistle, a California Exotic Plant Species and a Priority Invasive Weed of the Lake Tahoe Basin was identified at Project Element 28 (Figure 3, Sheet 4). Diffuse knapweed and scotch broom, two California-listed noxious weeds, were identified just outside the BSA (see Figure 3) during the 2002 field surveys.

4.4.7.2 Avoidance and Minimization Efforts

To avoid and minimize the spread or introduction of weedy plant species in the BSA, weed surveys were conducted and locations of identified weeds were mapped. Upon selection of the preferred alternative, a weed survey will be conducted prior to construction. Additionally, construction-level plan sheets and special provisions will show known weed locations; show the locations of fencing and/or other BMPs to prevent the spread and introduction of weedy plant species; and provide direction for implementation of a weed management plan that conforms to TRPA, USFS and Placer County standards. Avoidance and minimization measures to avoid and minimize the spread or introduction of weedy plant species in the BSA would be provided by remove existing weeds prior to construction, cleaning all equipment, using only certified weed-

free fill, and conducting post-construction monitoring of sites disturbed by construction for 3 years in areas with weeds prior to construction (MMA 10, Table 5).

4.4.7.3 Project Impacts

No impacts are expected to occur due to weed spread or introduction because implementation of a weed management plan prepared for the Kings Beach Project and approved by the regulating agencies, in addition to use of BMPs during Project construction, will protect the BSA biological resources.

4.4.7.4 Compensatory Mitigation

Because appropriate avoidance and minimization measures as described above will prevent weed infestation impacts in the BSA, no compensatory mitigation is required.

4.4.7.5 Cumulative Impacts

Cumulative impacts from weedy plant species within the BSA area have resulted from various past and present actions that disturbed native vegetation and/or area soils, and allowed the introduction and establishment of these species into the Project area, and the general Lake Tahoe Basin, by mechanical or human means. Impacts include changes to native plant community species composition in regard to native plant species abundance and/or diversity, and subsequent influence on wildlife habitat values and condition.

Reasonably foreseeable future development activities within the CCIP area could continue this trend of allowing the establishment of weedy plant species. The mitigation measures discussed in Table 5 would assist in reducing the potential for continued establishment of weedy plant species as a result of future projects.

5.0 CUMULATIVE IMPACTS

This section discusses the cumulative impacts to biological resources that could result from implementing the proposed Project. For the purposes of this analysis, the cumulative effect area is equivalent to the BSA. As defined in 40 CFR 1508.7 (regulations for implementing NEPA) a cumulative impact is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions.

According to the State of California CEQA guidelines, cumulative impacts refers to two or more individual effects, which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related, past, present, and reasonably probable future projects. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (Section 1535.5).

Databases maintained by the regulatory agencies and conservation groups indicate over forty projects with the Kings Beach Project cumulative assessment area that have been completed since 1990 (past), or are in progress (present). In addition, several TRPA Environmental Improvement Program (EIP) Projects are proposed for the general cumulative affects area as part of reasonably foreseeable future actions. Table 5 (in Section 4) presents a list of projects that have been completed or are ongoing within the Kings Beach Project cumulative assessment area since 1990. These projects, which range from small residential, commercial, roadway, and natural resource improvement projects to similar projects on a larger scale could have, or would potentially contribute to, past, present, and reasonably foreseeable cumulative impacts when assessed in conjunction with the proposed Kings Beach Project.

However, it is virtually impossible to assess the actual cumulative impacts the listed projects have had on resources in the Project assessment area, except on a general scale. This is either because detailed impact and assessment studies for these projects have not been completed in the past, or the individual project activity was simply too small to show any impact. It is known that significant residential (including population increases) and commercial growth has occurred within the community of Kings Beach over the past 15 years, which has required improvements to area roadways, including the SR 28 improvements proposed as part of the Project.

As proposed, implementation of the Kings Beach Project will contribute to positive cumulative impacts to key biological resources. For example, the proposed improvements to SR 28 and other associated water quality improvement activities would result in a positive impact to area water resources, including Griff Creek and Lake Tahoe. This section assesses cumulative impacts to biological resources within the BSA that resulted from past and present activities in general terms. Potential cumulative impacts to these biological resources from reasonably foreseeable future actions are also assessed in general terms, as the implementation of these future actions is dependent on the availability of funding from the appropriate federal, state, and local agencies and conservation groups.

6.0 RESULTS: PERMITS AND TECHNICAL STUDIES FOR SPECIAL LAWS OR CONDITIONS

6.1 Regulatory Requirements

Various federal, state, and local laws, regulations and ordinances that could require consultation for specific biological resource issues associated with the BSA were reviewed during the pre-field work activities. A summary of these is provided below.

6.2 Federal Endangered Species Act Consultation Summary

Biological assessments are required under Section 7(c) of ESA if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined by Part 404.02. Under Section 7(a)3 of ESA every federal agency is required to consult with the United States Fish and Wildlife Service or National Marine Fisheries Service on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species. When it was determined that federally listed species were present within the vicinity of the proposed Project, informal consultation with the USFWS was initiated with the request of a threatened and endangered species list. This list was received on January 17, 2006 (Appendix D). The following summarizes Caltrans' determination for federally listed, candidate, and species of special concern that—according to the USFWS lists—may occur in the Project vicinity:

Due to the Project area being outside the range of the species, the lack of suitable habitat or habitat components in the Project area, the lack of detection during recent USFS, TRPA, and Caltrans surveys or because the Project would not harm individuals or alter the species' habitat, it is Caltrans' determination that the proposed Project will have "no effect" on the following Federally listed threatened or endangered, candidate, or proposed species or their critical habitat:

- Bald eagle (FT),
- Lahontan cutthroat trout (FT),
- Mountain yellow-legged frog (FC), and
- Tahoe yellow cress (FC).

No formal Section 7 consultation will therefore be required with the USFWS on these species.

6.3 California Endangered Species Act Consultation Summary

Section 2081 Permit, California Endangered Species Act. Should it be determined that a State of California threatened or endangered species would be affected by proposed Project

activities, compliance with Section 2081 of the CESA would be required. A Section 2081 Permit would need to be obtained from DFG.

6.4 California Department of Fish and Game Consultation Summary

The limits of jurisdiction of Fish and Game Code Section 1601 includes the bed, channel, and bank of any river, stream or lake in which there is at any time an existing fish or wildlife resource, or from which these resources derive benefit. The limits of this jurisdiction typically extend to the outer edge of riparian vegetation, or to the top of bank for areas with little or no riparian habitat (DFG 1994b). Work within the jurisdiction of Fish and Game Code 1601 will require the use of a Section 1601 Streambed Alteration Agreement.

Areas in the jurisdiction of the Fish and Game Code section 1600–1616 were not observed within the Project study area and consultation with state resource agencies will not be necessary, in accordance with legal requirements set forth under Sections 1600–1616 of the California Fish and Game Code. Therefore, a Section 1602 Streambed Alteration Agreement is not required for this Project.

6.5 Clean Water Act Consultation Summary

Potential wetlands throughout the Project area were evaluated according to the methodology set forth in the Corps' *1987 Wetlands Delineation Manual*. A positive determination of wetlands was made based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The discharge of dredged or fill material in these wetland systems will require a Section 404 permit from the Corps and a Section 401 certification from the California Regional Water Quality Control Board (RWQCB).

The ordinary high-water mark delineates the limits of the Waters of the United States located at the ephemeral, intermittent and ephemeral drainage courses located within the Project area. The discharge of dredged or fill material in these systems will require a Section 404 permit from the Corps.

Areas within the jurisdiction of Clean Water Act Section 404 were delineated within the Project study area and consultation with the Corps will be necessary, in accordance with legal requirements set forth under Section 404 of the Clean Water Act. A Section 404 permit is required for this Project.

6.6 Wetlands and Other Waters Coordination

Wetlands and other waters of the United States are defined by the Corps as follows:

Wetlands as defined in 33 CFR Part 328, Section 7(b) means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The frequency and duration of saturation may vary by geographical region, and is largely dependent upon climatic conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Waters of the United States are those navigable waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity [i.e., Lake Tahoe].

Other waters of the United States include all non-tidal waters that are currently, or were used in the past, or may be susceptible to use in interstate commerce; all interstate waters; all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, wetlands, and playa lakes; the use, degradation, or destruction of which could affect interstate commerce.

Regional General Permit 16. In the Lake Tahoe Basin, the Corps currently requires the Regional General Permit 16 (GP16) to authorize minimal impact activities for work in waters of the United States, including wetlands. The GP16 is issued under the authority of the Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 USC 403), and Section 404 of the Clean Water Act (33 USC 1344) in accordance with the provisions of “Regulatory Programs of the Corps of Engineers” (33 CFR 320–330). Portions of the Project are slated to occur within or adjacent to potentially jurisdictional other waters of the United States (e.g., roadside drainage ditches).

Streambed Alteration Agreement. DFG also regulates alterations to lakes, rivers and streams under Section 1600 of the Fish and Game Code of California. Projects that would divert, obstruct, or change the natural flow or bed, channel or bank of “Waters of the State” must obtain a Streambed Alteration Agreement with DFG. Waters of the State include natural lakes, rivers, streams, and engineered systems designed to convey or hold surface water. Griff Creek is considered a Waters of the State.

Water Quality Management Plan for the Lake Tahoe Region Volume III: Stream Environment Zone Protection and Restoration (TRPA 1988). This sets forth factors necessary for an area to qualify as a SEZ. At least one key indicator or two secondary indicators are needed. Key indicators include evidence of near surface water (0–20 inches); one of the following primary vegetation types: open water (Type 0), herbaceous (Type 2), riparian shrub (Type 7), or broadleaf (Type 9); and soil such as beach (Be), Elmira loamy coarse sand, wet variant (Ev), or marsh (Mh). Secondary indicators include location of site within a designated 100-year floodplain; evidence of groundwater (20–40 inches); one of the following riparian vegetation types: herbaceous (Type 2), broadleaf (Type 9), or lodgepole (Type 19); and one of the following alluvial soils: loamy alluvial land (Type Lo), Cello gravelly loamy sand (Co), or gravelly alluvial land (Gr). In addition, a buffer is required to protect the integrity of the SEZ. The width of the buffer is based on several factors, including the outermost limit of key indicators, or outmost limit of two or three secondary indicators, dependent on soil type. Slope

condition (percent erosion, ground cover, and slope), channel type (confined or unconfined) and stream type (perennial, intermittent, or ephemeral) also determine the width of the SEZ.

6.7 Other Regulatory Requirements

6.7.1 Late Seral/Old Growth Trees

Tree Removal (Late Seral/Old Growth Enhancement and Protection). The TRPA *Regional Plan for the Lake Tahoe Basin, Code of Ordinances* (TRPA 2004) states in paragraph 71.2.A Standards for Conservation and Recreation Lands: “Within lands classified by TRPA as conservation or recreation land use or Stream Environment Zones, any live, dead or dying tree greater than or equal to 30 inches diameter at breast height (dbh) in westside forest types shall not be cut, and any live, dead or dying tree greater than or equal to 24 inches dbh in eastside forest types shall not be cut”, except as described in Chapter 71.2.A1-10. The BSA is located within the eastside forest type and does contain some SEZs within its boundaries.

Paragraph 71.2.B Standards for Non-SEZ Urban Lands states “Within non-SEZ urban areas: Individual trees larger than 30 inches dbh that are healthy and sound shall be retained as desirable specimen trees having aesthetic and wildlife value, unless 1) all reasonable alternatives are not feasible to retain the tree, including reduction of parking areas or modification of the original design, or 2) paragraphs 71.2A(1), 71.2A(2), 71.2A(3), 71.2A(7), 71.2A(8), 71.2A(9) can be applied.”

6.7.2 Weedy Plant Species (Noxious, Invasive and Exotic Plants)

Databases maintained by the California Department of Food and Agriculture, Division of Plant Industry, Integrated Pest Control (CDFA) were searched for information regarding noxious weeds. Noxious weeds are defined as “any species of plant which is, or is liable to be, detrimental or destructive and difficult to control or eradicate”. The CDFA administers three programs that involve weed control. These include Biological Control, Weed and Vertebrate Control, and the Hydrilla Programs. The following is a description of the CDFA List definitions:

- **List A:** The most invasive and widely spread weed infestations requiring the most control with eradication, quarantine, or other holding action required at the state or county level;
- **List B:** Noxious weeds are more widespread and therefore more difficult to contain with intensive control or eradication, which occurs where feasible, at the county level; and
- **List C** - Weeds so widely spread that CDFA only endorses funding for eradication and containment in nurseries and seed lots with control, or eradication, as local conditions warrant, at the county level.

A current listing of California state-listed noxious weeds was obtained via the Internet from the U.S. Department of Agriculture, Natural Resources Conservation Service, PLANTS Database (USDA, NRCS 2004). Ms. Sue Donaldson (Donaldson 2004), Water Quality Education

Specialist with the University of Nevada, Reno Cooperative Extension also provided the list of *Priority Invasive Weeds of the Tahoe Basin*, which was updated in September 2004 as follows:

- **Group 1:** Watch for, report, and eradicate immediately; and
- **Group 2:** Manage infestations with a goal of eradication.

6.7.3 Vegetation Protection and Management

The TRPA *Code of Ordinances* (Section IX, Chapter 74) provides protection for Stream Environment Zones (TRPA 2004) and states in paragraph 74.2 Protection of Stream Environment Zones: “No Project or activity shall be undertaken in an SEZ (land capability 1b) which converts SEZ vegetation to a non-native or artificial state, or which negatively impacts SEZ vegetation through action including, but not limited to, reducing biomass, removing vegetation, or altering vegetation composition”. A land capability verification of the Project was performed by TRPA in 2004 and determined that two land capability classifications exist within the Project area: 1b and 5 (Figure 3). Classification 1b is described as “Most sensitive and restrictive lands with least tolerance for disturbance by development with allowable impervious cover varying from 1 to 5 percent”. Classification 5 is described as exhibiting “Moderate sensitivity, with allowable impervious cover at 25 percent”. Classification 1b within the Project area includes both beach and SEZ.

6.7.4 Sensitive and Uncommon Plant Protection and Fire Hazard Protection

The protection of plant resources is regulated in Section IX, Chapter 75, of the *Regional Plan for the Lake Tahoe Basin, Code of Ordinances* (TRPA 2004). The Code identifies standards for the preservation and management of vegetation of significant scenic, recreational, educational, scientific, or natural values in the Tahoe Basin, including sensitive plant and uncommon plant communities.

6.7.5 Wildlife Resources

The TRPA Code of Ordinances (TRPA 2004) provides regulations on protecting and enhancing existing diverse wildlife habitats, with special emphasis on protecting or increasing habitats of special significance, such as deciduous trees, wetlands, meadows, and riparian areas (Chapter 78). The protection of SEZs, movement and migration corridors, critical habitat, and snags and coarse woody debris is also described in Chapter 78. Special interest, threatened, endangered, and rare wildlife species also are afforded protection under this section of the Code. Disturbance zones for perching sites and nesting trees of raptors, including the northern goshawk, peregrine falcon, osprey, bald eagle, and golden eagle have been established. In addition, disturbance zones for wintering bald eagles have been established. Special conditions also may be required to mitigate or avoid significant adverse impacts to TRPA and LTBMU special interest, sensitive, and management indicator species.

6.7.6 Fish Resources

The TRPA Code of Ordinances provides regulation for the protection of fish resources in Chapter 79 (TRPA 2004). The Code states that, “New uses, projects, and activities within fish habitat, as identified by TRPA fish habitat maps or a qualified biologist, shall include provisions for the protection or enhancement of the affected habitat.” Fish habitat is defined as “a complex set of elements such as spawning and nursery or rearing areas, food supply and escape cover.” Chapter 79 allows for protection for lake and stream fish habitats and may require special conditions of operation to mitigate or avoid significant adverse impacts to habitat or normal fish activities.

6.7.7 Caltrans Right-of-Way

Encroachment Permit. Caltrans will require an encroachment permit for work activities accomplished within their right-of-way areas.

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